



0000088646

ORIGINAL BEFORE THE ARIZONA CORPORATION

## COMMISSIONERS

Mike Gleason, Chairman

William A. Mundell

Jeff Hatch-Miller

Kristin K. Mayes

Gary Pierce

RECEIVED

2008 SEP 15 A 9:21

ARIZONA CORPORATION  
DOCKET CONTROL

IN THE MATTER OF THE  
APPLICATION OF UNS ELECTRIC,  
INC. FOR APPROVAL OF THE  
ESTABLISHMENT OF JUST AND  
REASONABLE RATES AND  
CHARGES DESIGNED TO REALIZE A  
REASONABLE RATE OF RETURN ON  
THE FAIR VALUE OF THE  
PROPERTIES OF UNS ELECTRIC,  
INC.

Docket No. E-04204A-06-0783

Notice and Filing of the Marshall Magruder

Rebuttal to the UNSE Response to Mr.

Magruder's Concerns with respect to

Completion of

20 Replacement Utility Poles and

12 Underground Cable Projects

13 September 2008

This is the Marshall Magruder Rebuttal to the UNS Electric Inc. Response of 28 July 2008 to the concerns I expressed in this case with respect to accomplishing the 20 replacement utility pole and 12 underground cable projects detailed in the ACC Staff-Citizens [now UNSE] Settlement Agreement required by ACC Decision No. 61793 and implemented in ACC Decision No. 62011. The UNSE Response was not distributed to Parties including ACC Staff, RUCO or myself and is incomplete and non-compliant with ACC Decision No. 70360 order which ordered a "detailed" response.

I certify this filing notice has been mailed to all known and interested parties, as shown on the Service List.

Respectfully submitted on this 10<sup>th</sup> day of September 2008

MARSHALL MAGRUDER

By

Marshall Magruder

PO Box 1267

Tubac, Arizona 85646

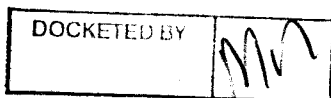
(520) 398-8587

[marshall@magruder.org](mailto:marshall@magruder.org)

Arizona Corporation Commission

DOCKETED

SEP 15 2008



## Service List

Original and 18 copies of the foregoing are filed this date:

**Docket Control** (13 copies)

**Arizona Corporation Commission**

1200 West Washington Street

Phoenix, Arizona 85007-2927

**Dwight Nodes**, Chief Administrative Law Judge (1 copy)

**Tenna Wolfe**, Administrative Law Judge (1 copy)

**Ernest G. Johnson**, Director Utilities Division (1 copy)

**Janice Alward**, Chief Counsel (1 copy)

**Maureen Scott**, Senior Staff Counsel (1 copy)

Additional Distribution (1 copy each, Filing Notice only to attorneys for PWCC and APS):

**Michael W. Patten**, Attorney for the Applicant

Roshka, DeWulf & Patten, PLC

One Arizona Center

400 East Van Buren Street, Suite 800

Phoenix, Arizona 85004-2262

**Dan Podzefsky**, Chief Counsel

Residential Utility Consumer Office

(RUCO)

1110 West Washington Street, Ste 220

Phoenix, Arizona 85007-2958

**Raymond S. Heyman**, Corporate Counsel

**Michelle Livengood**, Attorney

UniSource Energy Services

One South Church Avenue, Ste 200

Tucson, Arizona 85701-1621

Filing Notice only (1 copy each of filing notice)

**Robert J. Metli**, Attorney for PWCC and APS

Snell & Wilmer, L.L.P.

One Arizona Center

400 East Van Buren Street

Phoenix, Arizona 85004-2202

**Thomas L. Mumaw**, Attorney for PWCC

**Deborah A. Scott**, Attorney for PWCC

Pinnacle West Capital Corporation

P. O. Box 53999, Mail Station 8695

Phoenix, Arizona 85072-3999

**Barbara A. Clemstine**, Attorney for APS

Arizona Public Service Company

P. O. Box 53999, Mail Station 9708

Phoenix, Arizona 85072-3999

Interested Parties (1 copy each) are filed this date by mail:

**Santa Cruz County Supervisors:**

**John Maynard**, Supervisor

**Louis Parra**, Assistant Santa Cruz

County Attorney

Santa Cruz County Complex

2150 North Congress Drive

Nogales, Arizona 85621-1090

**City of Nogales**

**José Machado**, City Attorney

**Michael Massee**, Assistant City Attorney

Nogales City Hall

777 North Grand Avenue

Nogales, Arizona 85621-22621

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35

**MARSHALL MAGRUDER REBUTTAL  
TO THE  
  
UNSE RESPONSE TO  
  
MR. MAGRUDER'S CONCERNS  
WITH RESPECT TO  
  
COMPLETION OF  
20 REPLACEMENT UTILITY POLE AND  
12 UNDERGROUND CABLE  
PROJECTS**

**13 SEPTEMBER 2009**

## TABLE OF CONTENTS

1	Notice of Filing .....	1
2	Service List .....	2
3	Title Page.....	3
4		
5	Summary .....	5
6		
7	1. ACC Order Requirements.....	7
8	2. UNSE Response.....	7
9	3. UNSE Response Distribution.....	7
10		
11	4. Why is this issue signification to customers in the Santa Cruz service area? .....	7
12	4.1 Plan of Action Commitments.....	9
13	4.2 Distribution Outages in the UNSE Santa Cruz service area.....	10
14	5. Analysis of the Status of the 20 Utility Pole Replacement Projects.....	11
15	5.1 Background information on the 20 defective Pole Replacement Projects....	11
16	5.2 Analysis Comparing the Plan of Action to the UNSE Utility Pole Data.....	12
17	Table 1 – Summary Data for the Pole Replacement Projects.....	13
18	6. Analysis of the Status of the 12 Underground Cable Replacement Projects.....	14
19	6.1 Background information on the 12 defective Cable Replacement Projects..	14
20	6.2 Analysis Comparing the Plan of Action to the UNSE Cable Replacement Data....	15
21	Table 2 – Summary Data for the Cable Replacement Projects.....	15
22	7. Conclusions.....	16
23	8. Recommendations .....	16
24	<u>Exhibits:</u>	
25	M-F Data for Defective Utility Pole Replacement Projects.....	17
26	M-G Data for Defective Underground Cable Replacement Projects.....	41
27	M-H Quotes from the Magruder Testimony in the Reliability Case.....	55
28		
29		
30		
31		
32		
33		
34		
35		

## Summary

In 1998, the City of Nogales filed with the Commission a Formal Complaint against Citizens Utility Company, its electricity utility, for not providing reliable electric service, causing economic damages and endangering community welfare. This was resolved by two sequential settlement agreements after strong intervention by the Commission. The City of Nogales and Citizens Settlement Agreement included agreements to compensate customer claims, by funding direct payments to customers, low income relief, economic development, four-year interest free loans to high school graduates and to improve electric service and community relations by creating a Citizens Advisory Council, collaborating with City to determine order of circuit restoration after an outage, developing a mutually acceptable and detailed Service Upgrade Plan for submission to the Commission, and negotiate a franchise agreement with the City. Citizens then negotiated a Plan of Action with the Commission Staff that resulted in an ACC Staff and Citizens Settlement Agreement containing schedules budgets for dozens of upgrades Citizens agreed to accomplish to improve reliability in Santa Cruz County. In addition to providing a second transmission line, the Plan of Action included many "non-transmission" projects with two major distribution reliability upgrades involving replacements for overage utility poles in 20 projects in specified locations, mostly in Nogales, and 12 projects to replace defective and improperly installed underground cables. The Complaint was dismissed when a Commission Order approved the City's Settlement Agreement and the Plan of Action implemented in a second Commission Order No. 62011 on 2 November 1999.

*to*  
Citizens started accomplishing the Plan of Action reliability improvements in 1999 and ~~had~~ replaced some of the 3,080 utility poles and 159,388 feet of underground cables by the time of the second Commission order costing over \$15 million for these projects. In 2005, after observing that many of these 32 projects did not appear to have been even started, I declared in testimony in the re-opened ACC Order No. 62011 case that these projects remained incomplete and was told to resubmit in the next Rate Case, which I did, in every submission to the Parties. The company did NOT respond to these pleadings and rejected my claims.

1 The resultant ACC Decision and Order No. 70360 ordered UNS Electric to submit  
2 a "detailed response to Mr. Magruder's allegations regarding the poles and underground  
3 cables under the 1999 Nogales/Citizens Settlement Agreement".

4 The UNSE Response is incomplete, erroneous and failed to provide ANY details  
5 concerning these 32 projects as no actual details or evidence presented refuted my claims.  
6

7 For example, 25 projects were claimed as being completed in 1999 which is  
8 absolutely false. Every underground cable replacement project was spread out over five  
9 years but UNSE claimed were completed in 1999, usually expending exactly the first year's  
10 planned expenditures. Only "estimates" were provided, no actual data, for the 20 pole  
11 projects which should have been easy to obtain since each pole has a "CUC number", each  
12 pole is annually depreciated according to a schedule provided in this case, and the  
13 company must know where poles are located in these project areas. Twenty 115 kV  
14 transmission line poles were not replaced. No feet of cable replacements were reported.

15 To the best of my ability under these conditions, I have tried to reconstruct each  
16 project using the flimsy information available, mostly from the Plan of Action itself. At best, I  
17 believe, at best, only 21.1% of the poles were replaced and 16.2% cable-feet were  
18 replaced.  
19

20 As shown in the Staff's Technical Report in this rate case, the relevant distribution  
21 "reliability indices" (SAIFI, SAIDI and CAIDI) decreased from the second quartile to the third  
22 (CAIDI) and fourth quartiles (SAIFI and SAIDI) between 2004 and 2006.  
23

24 The UNSE Response on page 2 stated  
25 "It appears that Mr. Magruder **does not believe** that

26 (1) Citizens fulfilled its obligations under the Plan' and/or  
27 (2) UNS Electric, as the successor to Citizens, completed the 20 pole and 12  
28 underground replacements projects in the Plan." [Emphasis added]  
29

30 **I believe neither (1) and/or (2) have been completed and that the UNSE**  
31 **Response failed to provide the details ordered by the Commission for these pole and**  
32 **cable replacement projects in the Plan of Action.**  
33  
34  
35

1 **Marshall Magruder Rebuttal to the UNSE Response to Mr. Magruder's Concerns with**  
2 **Respect to Completion of 20 Replacement Utility Pole and 12 Underground Cable**  
3 **Projects**

4 **1. ACC Order Requirements.**

5 ACC Decision 70360 of 27 May 2208,

6 "ORDERED that UNSE shall file a detailed response to Mr. Magruder's allegations  
7 regarding the poles and underground cables under the 1999 Nogales/Citizens  
8 Settlement Agreement, within 60 days of the effective date of this Decision. Replies to  
9 the Company's response shall be filed by Mr. Magruder, Staff and RUCO within 30 days  
thereafter." <sup>1</sup> [underlined for emphasis and later reference]

10 **2. UNSE Response.**

11 UNSE filed its response on 28 July 2008 (32 days after the effective date of the order) and did not  
12 include this Party, RUCO or the ACC Staff on its distribution list and receipt by these parties is  
13 unknown.<sup>2</sup> The UNSE Response is ambiguous, without details, and is not compliant with this  
14 Order as shown below.

15 **3. UNSE Response Distribution.**

16 I did not receive a copy of this filing until 2 September 2008, from which the 30 days to respond  
17 can begin. No responses or rebuttals have been received by this party or docketed by ACC Staff  
18 and RUCO as of the date of this filing. These other two parties, the ACC Staff and RUCO need  
19 time to respond, after being served a copy.

20 **4. Why is this issue significant to customers in Santa Cruz Service Area?**

21 This is best explained by the words used by Citizens in its "1999 System Improvement, Santa  
22 Cruz District" section of its Plan of Action.<sup>3</sup> These are in the Plan of Action mandated by ACC  
23  
24

25 <sup>1</sup> ACC Decision No. 70306 of 27 May 2008, hereafter **Decision No. 70306**, page 86. It is noted the City of  
26 Nogales-Citizens Settlement Agreement required the utility to develop an Upgrade Plan or Plan of Action to  
improve reliability. The plan of action is in a ACC Staff-Citizens Settlement Agreement.

27 <sup>2</sup> UNSE filing in Docket No E-04204A-06-0783, titled "UNS Electric, Inc.'s Response to Mr. Magruder's  
28 Concerns," dated 28 July 2008 (hereafter "**UNSE Response**"), page 4.

29 <sup>3</sup> Late-Filed Exhibits by Marshall Magruder" in the present case on 24 December 2007 (hereafter **Late-Filed**  
30 **Exhibits**), Exhibits M-D and M-E. These Exhibits are referenced in the Magruder filings but appear ignored  
31 by UNSE. These entire documents were submitted as five Exhibits. Three Exhibits were previously filed in  
the Reliability Case and referenced many times in the present case. All are labeled with an "M" prefix, using  
alphabetic sequence letters for identification purposes that continues in this Rebuttal:

32 Exhibit M-A "ACC Decision No. 61793, "City of Nogales, Arizona, Complaint, vs. Citizens Utility Company,  
33 Santa Cruz Electric Division" of 29 June 1999 with Appendix A, "Revised Settlement  
Agreement Between the City of Nogales, Arizona, and Citizens Utilities Company" of 1 June  
1999 (15 pages), hereafter "**Nogales-Citizens Agreement**")

34 Exhibit M-B This exhibit is not applicable to this filing.

35 Exhibit M-C "UNS Electric Responses to Magruder Data Requests MM DR 2.6 and MM DR 3.10, and  
Data Requests MM DR 2.8 and MM DR 3.12 (6 pages), hereafter **Exhibit M-C**.

Decision No 61793 on 29 June 1999 and implemented by ACC Decision No. 62011 on 2 November 1999, previously been submitted in the present case.<sup>4</sup>

Quote:

### **Distribution Circuits Improvements**

#### **Introduction**

The distribution system improvements are an acceleration of work that was begun in 1994. These projects include replacement of poles and underground cable. In 1994, pole replacements were concentrated in the northern part of Santa Cruz County. Some of the overhead work involves splitting circuits that share poles, in one case it involves activation of an additional circuit in Nogales. Underground cable replacements are targeted at reducing outage hours in areas that have expressed frequent outages.

#### **Overhead Circuits**

The pole replacements are mainly concentrated in the Nogales area. These poles have reached the end of their life cycle. Some of the pole replacements involve the relocation of circuits, as in the case of Circuits 6241 and 6246. Circuit 6241 feeds the west-side of Nogales (and feeds the hospital). Circuit 6241 shares a pole with Circuit 6246. By relocating a portion of 6241, Citizens can reduce the stress on the poles and eliminate potential outages due to structural failures. Activation of Circuit 6246 will allow Citizens to split the load on the west-side of Nogales, and increase the ability to back feed 6241 in the event of damage.

A major portion of the pole replacements will be done along Highway 82 and into the mountains in the Locheil area. This loop will allow Citizens to sectionalize and isolate damaged portions of line, thereby keeping the highest number of customers in service.

#### **Underground Circuits**

Underground cable replacements are concentrated in Rio Rico and Tubac. The Rio Rico Unit 3 area was installed in the early 1970's. This cable was directly buried and is ending its useful life cycle. A significant number of outages occur in this area. Smaller sections of cable needed to be replaced in other subdivisions, but not as much as in the above two subdivisions.

A significant portion of the cable replacements involves the underground feed to the top of Mount Hopkins. This cable was installed by a contractor in the 1970's, and was also direct buried. This cable has numerous faults. When a fault occurs, locating the faulted portion requires an entire crew. It should be noted that because this part of the county is so far from the rest of the service territory, if there is an outage that requires a crew from Nogales, it takes a minimum of an hour for them to get there.

The major portion of these replacements in Nogales are in trailer parks. These parks also have cable that was direct buried and have numerous faults. The older sections of Meadow Hills has the same type of cable installation. Some faults have occurred in this area, and some cable has been replaced as well.<sup>5</sup>

End Quote

Exhibit M-D Citizens' Plan of Action, filed 7 May 1999, excerpt, "Attachment IV Citizens Utility Company Pole and Cable Replacements Santa Cruz Electric District, 1999-2003 (6 pages) hereafter **Exhibit M-D or Citizens Pole and Cable Replacement Plan**.

Exhibit M-E Citizens' Plan of Action, filed 7 May 1999, excerpt, "1999 System Improvements Santa Cruz District" (4 pages), hereafter **Exhibit M-E**.

<sup>4</sup> Exhibit M-E, page 3 of 4.

<sup>5</sup> *Ibid*.



1  
2 The above was presented to the Commission by the utility in 1999, almost a decade ago.<sup>6</sup>  
3 These 3,080 "past life cycle" utility poles planned for replacement are now 10 years older, 10  
4 years after completion of their life cycle replacement plan. The underground cables "ending its  
5 useful life cycle" with a "significant number of outages in the future"... with "numerous faults" are  
6 also 10 years older. Past life cycle poles and cables only age with time and the additional 10  
7 years of life need to be justified by the company. The company's annual expenditures for these 32  
8 projects were included for each project.

9  
10 **4.1 Plan of Action Commitments.**<sup>7</sup>

11 The record is clear, that Citizens made a strong commitment to these 32 projects. Each  
12 project was developed to improve distribution reliability in a reasonable, long-term approach to  
13 eventually increase overall customer reliability. Some had started as early as 1994. Excerpts from  
14 some of these commitments, approvals, and mandates include:

- 15 a. The "Settlement Agreement Between Commission Staff and Citizens Utilities Company,"<sup>8</sup>  
16 initial paragraphs state:

17 "Citizens Utilities Company ("Citizens") and the Arizona Corporation Commission  
18 Staff ("Staff") **agree** as follows concerning Citizens' Plan of Action to address  
19 service quality issues in its Santa Cruz Electric Divisions, Citizens' Analysis of  
20 Transmission Alternatives and Citizens' Schedule to construct a second  
21 transmission line to serve its Santa Cruz Electric Division Customers. Citizens'  
22 Plan of Action, as filed on April 15<sup>th</sup>, 1999, and Supplemented on May 7<sup>th</sup>, 1999,  
23 and July 13<sup>th</sup>, 1999, complies with Decision Nos. 61383 and 61793..."

- 24 b. ACC Decision No. 62011, in Findings of Fact 2, states:

25 "Decision 61383 (January 9, 1999) **directed** Citizens to file an analysis of  
26 alternatives and Plan of Action to rectify the service problems in the Santa Cruz  
27 Electric Division, for approval at Open Meeting, and order that a hearing be held  
28 regarding Citizens' request."

- 29 c. The ACC Decision No. 62011, in Finding of Fact 15, states:

30 "The [Commission Staff-Citizens] Settlement Agreement **commits** Citizens to a  
31 Plan of Action that is in compliance with Decisions No. 61383 and 61793 and  
32 incorporates Staff recommendations... The Settlement Agreement states that the  
33 Plan of Action includes Citizens' submittal of April 15, 1999, as supplemented on  
34 May 7, 1999 and July 13, 1999."

35  
<sup>6</sup> Filed in the Citizens Plan of Action of 4 May 1999 in ACC Docket No. E-01032A-99-0401, implemented in  
ACC Decision and Order No. 62011 of 2 November 1999, subsequently been reopened in 2005, and  
remains open.

<sup>7</sup> These four subparagraphs (a to d) are excerpts from Late-Filed Exhibits, page 5.

<sup>8</sup> Dated 9 August 1999 in ACC Docket E-01032A-99-0401.

d. The Citizens Plan of Action, "Supplement to Citizens Utilities Company's Santa Cruz Electric Division Transmission Alternatives and Plan of Action" states under "Planned Improvements That are Not Dependent On Construction of Second Transmission Line" states:

"Citizens is currently replacing poles and cable. Attachment IV includes detailed schedules showing the areas where replacements will be made, the number of poles or amount of cable that will be replaced, and the capital expenditures to do so, for the years 1999-2003."

#### 4.2 Distribution Outages in the UNSE Santa Cruz service area.

During the re-opened ACC Order No. 62011 hearings, I submitted a detailed analysis of all outages in this service area between 1994 and 2004 using the monthly "outage" reports submitted to the ACC Staff during that time period as shown in Exhibit M-F below. This data shows in 11 years there were 2,217 distribution outages during major storms and 2,080 other distribution outages for a total of 4,297 distribution outages. Santa Cruz County is one of the most lightning prone areas in the United States with over 2,000 lightning strikes in an hour. On an annual average basis, outages in the service area were as follows:

- a. During Major Storms: 201.5 Distribution outages per year (= 2217/11)
- b. At all other times 189.1 Distribution outages per year (= 2080/11)
- c. **Total Distribution Outages 390.6 Distribution outages per year (= 4297/11)**

The bulk of the distribution system consists of wires connecting customers to the servicing substation. These are overhead wires on utility poles and underground cables that are connected to distribution transformers as the feeder circuits extend from the substation.

Since a vast majority of customer outages are related to the distribution system, then highly reliable structures holding the connectors and actual underground cables must meet high standards. As the earlier statement by Citizens clearly states, the utility poles selected for replacement were "beyond their service life". In other words, they required replacement in order to meet the service quality of the proceedings that lead up to ACC Order No. 62011. The design of the twenty overhead utility pole replacement projects was based on utility poles that were beyond service life and the best ones to be upgraded in order to improve distribution service reliability.

Furthermore the underground cable used was of low reliability and had been improperly laid. Underground cables need proper burial, and "improper installations often can lead to premature field failures."<sup>9</sup>

<sup>9</sup> "Underground Cables Need a Proper Burial," *Transmission & Distribution World*, 1 April 2003. This article indicates the effects of improper selection and installation of thermal backfill materials may not be evident for several years. Heat from the cable must be dissipated through the soil and is quantified by soil thermal

1 **5. Analysis of the Status of the 20 Utility Pole Replacement Projects.**

2 **5.1 Background Information on the 20 Defective Pole Replacement Projects.**

3 At issue are the specific twenty defective utility pole replacement projects. This was first  
4 presented to the Commission in July 2005 during the "reliability in Santa Cruz service area" case.  
5 My Testimony<sup>10</sup> provided the same information in Exhibit M-H.<sup>11</sup> I was told during those hearings  
6 the proper venue for this issue would be the next Rate Case, which is why this issue has been  
7 raised again. Starting in my Motion to Intervene<sup>12</sup>, Data Requests in discovery<sup>13</sup>, then in Direct  
8 Testimony<sup>14</sup>, Supplemental Direct Testimony<sup>15</sup>, Surrebuttal Testimony<sup>16</sup>, Summary<sup>17</sup>, Late Filed  
9 Exhibits<sup>18</sup>, Reply to UNSE Response to Late-Filed Exhibits by Magruder<sup>19</sup>, Opening Brief<sup>20</sup>, Reply  
10 Brief<sup>21</sup>, and Exceptions<sup>22</sup>, this issue has been presented over and over again with **negligible**  
11 **responses by UNSE.**

12  
13 resistivity (rho, in °C-cm/W) which can vary from 30 to 500°C-cm/W. Safe soil has a thermal rho of less than  
14 90°C-cm/W and is also moist. The thermal rho of a dry soil may exceed 150°C-cm/W and approach 300°C-  
15 cm/W for a dry uniform sand. Soils in semi-arid climates are naturally quite dry. Soil that is not properly  
16 compacted in the cable trench has a substantially higher thermal rho. Well-graded sand to fine gravel that is  
17 compacted to its maximum density determined by a standard Proctor test from ASTM-D689 can give a  
18 good thermal backfill." A copy of this article can be obtained from this party.

19 <sup>10</sup> In ACC Docket No E-01032A-99-0401, "In the Matter of service Quality issues, Analysis of Transmission  
20 Alternatives and Proposed Plan of Action in the Santa Cruz Electric Division of Citizens Utilities Company,"  
21 (hereafter **Reliability Case**), Testimony of Marshall Magruder (hereafter **Reliability Case Magruder**  
22 **Testimony**), 8 July 2005, pages 135 to 137. This is in Exhibit M-H herein.

23 <sup>11</sup> In the "Late-Filed Exhibits by Marshall Magruder" in the present case on 24 December 2007 (hereafter  
24 **Late-Filed Exhibits**), five exhibits were filed with all but two were previously filed in the Reliability Case,  
25 referenced many times in the present case. For reference purposes these five exhibits were labeled with an  
26 "M" prefix, using alphabetic sequence letters for identification purposes that is continued in this Rebuttal.

27 Exhibit M-A "ACC Decision No. 61793, "City of Nogales, Arizona, Complaint, vs. Citizens Utility Company,  
28 Santa Cruz Electric Division" of 29 June 1999 with Appendix A, "Revised Settlement  
29 Agreement Between the City of Nogales, Arizona, and Citizens Utilities Company" of 1 June  
30 1999 (15 pages), hereafter "**Nogales-Citizens Agreement**")

31 Exhibit M-B This exhibit is not applicable to this filing.

32 Exhibit M-C "UNS Electric Responses to Magruder Data Requests MM DR 2.6 and MM DR 3.10, and  
33 Data Requests MM DR 2.8 and MM DR 3.12 (6 pages), hereafter **Exhibit M-C**.

34 Exhibit M-D Citizens' Plan of Action, filed 7 May 1999, excerpt, "Attachment IV Citizens Utility Company  
35 Pole and Cable Replacements Santa Cruz Electric District, 1999-2003 (6 pages) hereafter  
**Exhibit M-D or Citizens Pole and Cable Replacement Plan**.

Exhibit M-E Citizens' Plan of Action, filed 7 May 1999, excerpt, "1999 System Improvements Santa Cruz  
District" (4 pages), hereafter **Exhibit M-E**.

12 Marshall Magruder Motion to Intervene of 12 March 2007 for Docket No. E-04204A-06-0783, page 1.

13 Exhibit M-C, Data Requests MM DR 2-8 and MM DR 3-10 and Late Filed Exhibits, page 11

14 Testimony by Marshall Magruder, of 28 June 2007, hereafter **Magruder Direct Testimony**.

15 Supplemental Direct Testimony by Marshall Magruder, of 12 July 2007, hereafter **Magruder Supplemental**  
16 **Testimony**, all of Part V, pages 8 and 22 to 49.

17 Magruder Surrebuttal Testimony, all of Part V, pages 8 and 9, and pages 36 to 50.

18 Magruder Summary of Testimony, 19 July 2007, page 3.

19 Late-Filed Exhibits, paragraph 2.b, pages 5 and 6; Part III, pages 9 to 11; and Exhibits M-C, M-D, and M-E.

20 Magruder Reply to UNSE Response to Late-Filed Exhibits by Marshall Magruder, 12 January 2008, page 2.

21 Opening Brief by Marshall Magruder, of 5 November 2007, pages 19 and 20.

Reply Brief by Marshall Magruder of 19 November 2007, pages 11 and 12.

1 The total response by UNSE to the above testimony and evidence provided by Marshall  
2 Magruder as indicated in the above paragraph is found in the Initial UNSE Post Hearing Brief:

3 **"Magruder Adjustments.**

4 Mr. Magruder proposed to disallow \$15,561,520 for what he views as an apparent  
5 failure to comply with Commission decisions, and to disallow \$282,440 for utility pole  
6 replacement and underground cable replacement. Mr. Magruder provides no  
7 supporting evidence justifying his proposed disallowances. Therefore, they should not  
8 be accepted."<sup>23</sup> [Underlining inserted for emphasis]

9 The company denied responding to Marshall Magruder Data Requests MM DR 2-8<sup>24</sup> and MM  
10 DR 3-10<sup>25</sup>. A complete response during discovery would have eliminated the requirements in the  
11 UNSE Response and this Rebuttal specified in Order No. 70360 for the same detailed information  
12 requested a year earlier. This failure to respond led to repeating the prior request in the Reliability  
13 Case in the Supplemental Direct Testimony and other filings in this docket.

14 The anticipated (and identical) company response to MM DR 3-10 was received after  
15 submission of the Magruder Supplemental Testimony that provided a detailed discussion of the  
16 twenty (20) utility pole replacement projects.<sup>26</sup> The detailed information from STF DR 3.118 and  
17 STF DR 2.1 contained all projects accomplished after UniSource Energy acquisition of Citizens on  
18 12 August 2003. From the other DRs, six of these 20 defective pole replacement appeared have  
19 related to the initial pole projects. As the analysis presented in this testimony<sup>27</sup> concluded:

20 "The data do NOT support completing ANY Pole Replacement Projects 1 through 20."<sup>28</sup>

21 **5.2 Analysis Comparing the Plan of Action to the UNSE Utility Pole Data.**

22 Each project in the Plan of Action has a total number of poles to be replaced, an annual  
23 breakout of poles to be replaced per year, and an annual budget are shown in the tables found in  
24 Exhibit M-G<sup>29</sup>. This data are compared with the results reported in the UNSE Response.<sup>30</sup> Table  
25 1 below summarizes the data from Exhibit M-G.

26  
27 <sup>22</sup> Exceptions to the Recommended Opinion and Order by Marshall Magruder, of 5 May 2008 pages 15 and  
28 16.

29 <sup>23</sup> Initial Post-Hearing Brief of UNS Electric, Inc., of 5 November 2007, page 20. The subsequent Reply Post-  
30 Hearing Brief by UNS Electric, Inc., of 19 November 2007 has NO references to any Magruder issues.

31 <sup>24</sup> Exhibit M-C, see MM DR 2-8, the company's response was "UNS Electric objects to this data request, as it  
32 is unduly burdensome and outside the scope of this rate case."

33 <sup>25</sup> *Ibid.*, see MM DR 3-10, the company's response was "UNS Electric objects to this data request, as it is  
34 unduly burdensome and outside the scope of this rate case." "

35 <sup>26</sup> Magruder Supplemental Testimony, pages 30 and 31.

<sup>27</sup> *Ibid.*, pages 25 to 32 .

<sup>28</sup> *Ibid.*, page 33.

<sup>29</sup> Citizens Pole and Cable Replacement Plan, found in Exhibit M-D, third unnumbered page.

<sup>30</sup> UNSE Response, Exhibit 1 for pole replacement projects.

**Table 1 – Summary Data for the Defective Pole Replacement Projects**

Pole Proj. ID No.	Project Area Described in the Plan of Action	Number of Poles to be Replaced	Poles Replaced to Date (1999)	Percent of Poles in Project Replaced	Number of Poles not Documented as Replaced	Total Budget for Project	Est. Cost per Pole	Actual Project Cost
(a)	(b)	(c) <sup>31</sup>	(d) <sup>32</sup>	(e) = (d)/(c)	(f) <sup>33</sup>	(g) <sup>34</sup>	(h) = (g)/(c)	(i)
1	Nogales West area	75	26	<b>34.7%</b>	10	\$300,000	\$4,000	Not reported
2	Nogales West north area	75	28	<b>37.3%</b>	16	\$210,000	\$2,500	Not reported
3	Reconductor Mariposa Industrial Park <sup>35</sup>	75	75	100.0%	15	\$165,000	\$2,200	Not reported
4	Downtown Nogales - Southeast	300	74	<b>34.7%</b>	5	\$840,000	\$2,800	Not reported
5	Downtown Nogales - Northwest	300	115	<b>38.3%</b>	46	\$860,000	\$2,867	Not reported
6	Downtown Nogales - Northwest	500	91	<b>18.2%</b>	48	\$1,274,000	\$3,548	Not reported
7	Downtown Nogales - Southeast	300	20	<b>6.7%</b>	35	\$860,000	\$2,867	Not reported
8	Beatus Estates Subdivision	150	0	<b>0.0%</b>	0	\$420,000	\$2,800	Not reported
9	Valle Verde Subdivision	150	106	70.6%	50	\$420,000	\$2,800	Not reported
10	Chula Vista Subdivision	50	0	<b>0.0%</b>	0	\$140,000	\$2,800	Not reported
11	Activate Circuit 6242	100	0	<b>0.0%</b>	15	\$420,000	\$4,200	Not reported
12	Circuit 6241	50	0	<b>0.0%</b>	0	\$140,000	\$2,000	Not reported
13	Meadow Hills North Subdivision	75	0	<b>0.0%</b>	5.5	\$210,000	\$2,800	Not reported
14	Meadow Hills South Subdivision	75	0	<b>0.0%</b>	5.5	\$210,000	\$2,800	Not reported
15	Transmission Line	20	0	<b>0.0%</b>	0	\$320,000	\$16,000	Not reported
16	Highway 82	250	148	59.2%	71	\$755,000	\$3,200	Not reported
17	Old Tucson Road	10	9	90.0%	10	\$25,000	\$2,500	Not reported
18	Rio Rico Highway Crossings	0	0	<b>0.0%</b>	0	\$128,000	0	Not reported
19	Rio Rico Industrial Park	25	16	64.0%	5	\$100,000	\$4,000	Not reported
20	Flux Canyon Area	500	0	<b>0.0%</b>	200	\$1,400,000	\$2,800	Not reported
	<b>Totals</b>	<b>3,080</b>	<b>634</b>	<b>21.1%</b>	<b>537</b>	<b>\$7,223,975</b>	<b>N/A</b>	<b>unknown</b>

- <sup>31</sup> Citizens Pole and Cable Replacement Plan, found in Exhibit M-D, page 2 of 6, 2<sup>nd</sup> column. This is the number of defective utility poles Citizens planned and funded to be replaced in the Project.
- <sup>32</sup> *Ibid.*, page 6, Progress to date. This is a 1999 snapshot of the progress to date and is the last "Actual Number" pole replacement data received.
- <sup>33</sup> See Exhibit M-F below for methodology used for each project.
- <sup>34</sup> *Ibid.*, page 6, this is the sum of budgets for 1999, 2000, 2001, and 2003, annual budgets are in Exhibit M-G.
- <sup>35</sup> *Ibid.* This project is to replace the conductor. Initially, it appears, Citizens projected 75 poles to accomplish this task during 1999 and 2000 on page 2. In its Progress to Date (1999) on page 6, the estimate changed to 1 and the actual number replaced as one. Since reconductor can be accomplished without replacing poles, it appears Citizens reduced to 1 pole for Project No. 3.

1 **6. Analysis of the Status of the 12 Underground Cable Replacement Projects.**

2  
3 **6.1 Background Information about the 12 Defective Underground Cable Replacement**  
4 **Projects.**

5 In developing the cable replacement plan, Citizens knew these cables laid in the 70s were  
6 now or will be soon a leading cause of distribution outages. These twelve underground cable  
7 replacement projects took this into account as a way to improved distribution reliability in the  
8 Santa Cruz service area.

9 These twelve cable replacement projects were presented with the above pole replacement  
10 projects as previously presented in section 5 above. The Data Requests<sup>36</sup> and Magruder  
11 Supplemental Testimony included these projects.

12 Detailed information from STF DR 3.118 and STF DR 2.1, showed four or five of these twelve  
13 defective cable replacement projects appeared they might have been related to the initial projects.  
14 As the analysis presented in this testimony<sup>37</sup> concludes:

15 "The data do NOT support completing ANY Cable Replacement Projects 1 through 12."<sup>38</sup>

16 At issue are the specific twelve defective underground cable replacement projects, which was  
17 first presented in July 2005 to the Commission in testimony<sup>39</sup> and evidentiary hearings concerning  
18 "reliability in Santa Cruz service area" which is repeated in Exhibit M-H. In parallel with the  
19 replacement utility pole issue, these underground cable replacements have also been included in  
20 my Motion to Intervene<sup>40</sup>, Data Request in discovery<sup>41</sup>, Direct Testimony<sup>42</sup>, Supplemental Direct  
21 Testimony<sup>43</sup>, Surrebuttal Testimony<sup>44</sup>, Summary, Late Filed Exhibits<sup>45</sup>, Opening Brief<sup>46</sup>, Reply  
22 Brief<sup>47</sup>, and Exceptions<sup>48</sup>.

23  
24  
25 <sup>36</sup> Exhibit M-C, MM DR 2-8 and MM DR 3-10.

26 <sup>37</sup> Magruder Supplemental Testimony, pages 3 and 33.

27 <sup>38</sup> *Ibid.* page 33.

28 <sup>39</sup> Reliability Case Magruder Testimony, pages 136 and 137. This is in Exhibit M-H herein.

29 <sup>40</sup> Magruder Motion to Intervene, page 1.

30 <sup>41</sup> Exhibit M-C, Data Requests MM DR 2-8 and MM DR 3-10 and Late Filed Exhibits, page 11

31 <sup>42</sup> Magruder Direct Testimony. Due to failure of receiving an informative discovery response to MM DR 2-8,  
32 this Testimony reserved Part V, Costs to Improved Electricity Reliability in the Santa Cruz Service Area, as  
33 MM DR 3-10 had been reworded and resubmitted with response due prior to submission of Supplemental  
34 Testimonies to be filed on 12 July 2008.

35 <sup>43</sup> Supplemental Direct Testimony, Part V, pages 8 and 22 to 49.

<sup>44</sup> Magruder Surrebuttal Testimony, all of Part V, pages 8 and 9, and pages 36 to 50.

<sup>45</sup> Late-Filed Exhibits, paragraph 2.b, pages 5 and 6; Part III, pages 9 to 11; and Exhibits M-C, M-D, and M-E.

<sup>46</sup> Magruder Opening Brief, pages 11 and 12.

<sup>47</sup> Magruder Reply Brief, pages 11 and 12.

<sup>48</sup> Magruder Exceptions, pages 15 and 16.

**6.2 Analysis Comparing the Plan of Action to the UNSE Cable Replacement Data.**

Each project in the Plan of Action has a total number of cable-feet to be replaced, an annual breakout of poles to be replaced per year, and an annual budget are shown in the tables found in Exhibit M-G<sup>49</sup>. This data are compared with the results reported in the UNSE Response.<sup>50</sup> Table 2 below summarizes the data from Exhibit M-G.

**Table 2 – Summary Data for the Defective Underground Cable Replacement Programs**

Cable Proj. ID No.	Project Area Described in the Plan of Action	Cable-feet planned to be Replaced	Cable-feet Replaced to Date (1999)	Percent of Project Replaced	Cable-feet Document -ed as Replaced	Budget for Project	Est. Cost per Cable-foot	Actual Project Cost to Date	Remaining Cost
(a)	(b)	(c) <sup>51</sup>	(d) <sup>52</sup>	(e) = (d)/(c)	(f) <sup>53</sup>	(g) <sup>54</sup>	(h) = (g)/(c)		
1	Mariposa Manor subdivision	7,677	0	0.0%	0	\$307,080	\$40.00	Not Reported	\$307,080
2	Monte Carlo subdivision	12,040	2,454	20.4%	2,454	\$481,600	\$40.02	Not Reported	\$386,632
3	Rio Rico Urban 3 subdivision	28,160	14,157	50.3%	14,157	\$1,126,000	\$40.00	Not Reported	\$560,160
4	Preston Trailer Park	3,663	0	0.0%	0	\$130,320	\$35.87	Not Reported	\$62,720
5	Tubac Country Club subdivision	6,900	0	0.0%	0	\$276,999	40.00	Not Reported	\$276,000
6	Tubac Valley County Club	4,300	7,290	169.5%	7,290	\$72,000	\$40.00	Not Reported	\$0.0
7	Palo Prado subdivision	13,500	9	0.0%	0	\$531,200	\$39.35	Not Reported	\$477,800
8	Empty Saddle Estates subdivision	8,180	0	0.0%	0	\$327,200	\$40.00	Not Reported	\$327,200
9	Mt. Hopkins	52,800	0	0.0%	0	\$2,147,000	\$40.67	Not Reported	\$2,147,000
10	Meadow Hills subdivision	15,840	0	0.0%	0	\$633,600	\$40.00	Not Reported	\$633,600
11	Canyon Del Oro/Vista Del Cielo	4,500	1,840	0.0%	1,840	\$180,000	\$40.00	Not Reported	\$115,200
12	Rio Rico Resort	1,828	0	0.0%	0	\$73,130	\$40.00	Not Reported	\$73,130
		<b>159,388</b>	<b>25,750</b>	<b>16.2%</b>	<b>25,741</b>	<b>6,285,129</b>	<b>\$40.00</b>	<b>Not Reported</b>	<b>6,285,129</b>

<sup>49</sup> Citizens Pole and Cable Replacement Plan in Exhibit M-D.

<sup>50</sup> UNSE Response, Exhibit 2 for underground cable replacement projects.

<sup>51</sup> Citizens Pole and Cable Replacement Plan, found in Exhibit M-D, page 3 of 6, 2<sup>nd</sup> column. This is the cable-feet of defective cable that Citizens planned and funded to be replaced in the Project.

<sup>52</sup> *Ibid.*, page 6, Progress to date. This is a 1999 snapshot of the progress to date and is the last "Actual Number" cable replacement data received.

<sup>53</sup> See Exhibit M-G below for methodology used for each project.

<sup>54</sup> *Ibid.*, page 6, this is the sum of budgets for 1999, 2000, 2001, and 2003, annual budgets are in Exhibit M-G.

1 **6. Conclusion.**

2 Since no **actual** UNSE pole or cable replacement data were provided during the hearings, the  
3 company's pre-filed and oral testimony or brief, during this case, the following conclusion in the  
4 Magruder Supplemental Testimony will remain valid until receipt of an compliant UNSE  
5 Response, to which this Rebuttal replies.

6 "The detailed electricity reliability in Santa Cruz service area recommendations are  
7 presented paragraph 5.4 herein which recommend deletion of \$15,561,520 from the  
8 UNSE rate base for failure to comply with ACC Orders, to require complete and  
9 continuous compliance with the City of Nogales and ACC Staff Settlement  
10 Agreements, to avoid include expenses performed by Citizens prior to acquisition to be  
11 credited to UNSE."<sup>55</sup> [underlined in the original]

12 **7. Recommendations.**

13 Again, it is recommended that UNSE provide the detailed information necessary to determine the  
14 completion status for EACH of these pole and cable replacement project. As shown in Exhibits M-F  
15 and M-G, below, each project is summarized and locations for actual data are provided as a draft  
16 format for USNE to provide it's next response.

17 It is recommended that UNSE:

- 18 a. Review its utility pole logs and underground project data as suggested herein.  
19 b. Resubmit using Actual data on a project by project basis, including the number of utility poles  
20 replaced in each project area for 1999 through 2008, cost of these pole replacements, total  
21 the number of poles and associated costs so that compliance with the Plan of Action and  
22 Project Status can objectively be made.  
23 c. Resubmit using Actual data on a project by project basis, including the number of  
24 underground cable-feet replaced in each project area for 1999 through 2008, cost of these  
25 cable replacements, total the number of cable-feet and associated costs so that compliance  
26 with the Plan of Action and Project Status can objectively be made.

27 It is recommended that the ACC Staff:

- 28 a. Review the new data to be submitted by UNSE for accuracy and completeness.  
29 b. Ensure full compliance with the entire ACC Staff – Citizens Settlement Agreement.

30 It is recommended that RUCO:

- 31 a. Review the new data to be submitted by UNSE for cost realism.  
32  
33  
34

35 <sup>55</sup> Magruder Supplemental Testimony, pages 8 to 30.



**Exhibit M-F**

**Data for Defective Utility Pole Replacement Projects**

This Exhibit contains data reported by the Citizens approved Plan of Action and data reported in the UNSE Response Exhibit 1 (no title). The table formats that follow are identical for each project. Each project is briefly described in terms of its Project Number and title, the total number of defective utility poles in the Citizens Plan of Action listed to be replaced. As each project has a geographic location. Without a detailed map of feeder circuits, using data obtained from data requests in this case, outages were identified by substation and a feeder circuit and were plotted on a map. Using the title associated with each Defective Utility Pole Plan, from Citizens Plan of Action, feeder circuits were estimated and associated substation determined. This information was included in the project description. The budget data and schedule for each Project were provided in the Plan of Action. Using this financial data, the number of defective utility poles to be replaced was estimated for each year between 1999 and 2003.

Additional information provided included the number of poles documented to be replaced, number of actual poles documented as being replaced, and the percentage of poles in the Project that have been actually replaced.

The following nine projects, totaling some 1,020 poles, as shown below, **have NO documented pole replacements**:

- Project 8 – Beatus Estates Subdivision, Nogales (150 utility poles)
- Project 10 – Chula Vista Subdivision, Nogales (50 poles)
- Project 11 – Activate Circuit 6246, Southwest and West in City of Nogales (100 poles)
- Project 12 – Circuit 6241, Mariposa Industrial Area, Nogales (50 poles)
- Project 13 – Meadow Hills (north) Subdivision, Nogales (75 poles)
- Project 14 – Meadow Hills (south) Subdivision, Nogales (75 poles)
- Project 15 – 115 kV Transmission Line between Tucson and Nogales (20 poles)
- Project 18 – Rio Rico Highway Crossings, Rio Rico (0 poles)
- Project 20 – Flux Canyon Area, east Circuit CZ-8203, east County (500 poles)

Six of other 11 projects with another 1,250 poles, showed some progress, although less than 50% complete, with lowest documented progress including:

- |   |       |
|---|-------|
| Project 7 – Downtown Nogales, Northeast (300 poles) | 6.7%  |
| Project 6 – Downtown Nogales, Southwest (500 poles) | 18.2% |
| Project 1 – Nogales West area (75 poles)            | 34.7% |
| Project 4 – Downtown Nogales, Southeast (300 poles) | 34.7% |

Project 2 – Nogales West (north) area (75 poles)	37.3%
Project 5 – Downtown Nogales, Northwest (300 poles)	38.3%

The information in this table for each project, include data reported by Citizens and then data reported in the UNSE Response.

In the Data Reported by Citizens, all data are from the Citizens Plan of Action:

- a. First Column, "Total Number of Poles for Project,"<sup>56</sup> this is the number of poles that Citizens reported needed to be replaced in the Project.
- b. Second Column, "Poles Replaced in 1999"<sup>57</sup>
- c. Third Column, "Actual Poles Replaced to Date (1999)"<sup>58</sup> This is a 1999 snapshot of the progress to date and is the last "Actual Number" pole replacement data received.
- d. Fourth Column, "Project X Budget" for 1999, 2000, 2001, 2002, and 2003 (first five lower columns)<sup>59</sup> and "Budget for Project"<sup>60</sup> in the sixth lower column

In the Data Reported in the UNSE Response, Exhibit 1:

- a. First Column, "Actual Number of Poles Replaced in Area,"<sup>61</sup> was not reported in any project.
- b. Second Column, "Estimated number of (defective) poles in project area," is exactly the same are reported by Citizens Plan of Action without the word "estimated"<sup>62</sup>
- c. Third Column, "Estimated Number of poles needed to be replaced"<sup>63</sup>
- d. Fourth Column, "Project X Expenditures" for 199, 2000, 2001, 2002, and 2003 (first five lower columns) and "Total Expended on Project" in the sixth lower column. The UNSE Response did not include the cost for any year or total for any project.<sup>64</sup>

<sup>56</sup> Exhibit M-D, page 2 of 6, second column.

<sup>57</sup> *Ibid.* page 6 of 6, third column.

<sup>58</sup> *Ibid.* page 6 of 6, fourth column, under the Progress to Date, is labeled "Actual Number"

<sup>59</sup> *Ibid.* page 2 of 6, fourth to seventh columns.

<sup>60</sup> This is the total of the years 1999 through 2003.

<sup>61</sup> The UNSE Response did not report any actual data, only an estimate of poles in the area (same as reported by Citizens in upper part of this table in first column).

<sup>62</sup> Same as Exhibit M-D, on page 2 of 6, second column. UNSE might be confused with page 6, for "Pole Replacements – Progress to Date" where data through 1999 were reported. The "estimated number" here is the number of poles in that project but is the plan had estimated on the date of the snapshot. There are NO other "estimated" numbers of poles in any of the Citizens documentation. The overall progress for these 20 projects (using page 6) is 5 projects that used more poles than planned, 5 projects that used less than planned, 1 project used the number planned, and 6 projects that should have replaced poles had NO actual poles replaced, and the final 2 projects had replaced no poles as planned.

<sup>63</sup> This was determined based on the data in UNSE Response Exhibit 1, fourth column, "Estimated # of Poles Needed to be Replaced" from which was subtracted the number of poles Actually Replaced.

<sup>64</sup> UNSE included "Year Completed" without any basis in its Exhibit 1 and indicated in either 1999 or 2000.

## Pole Project 1

### Nogales West area - Utility Pole Replacements - 75 total poles<sup>65</sup>

This area covers the western part of Nogales on the "West Nogales" feeder circuit (probably 6241 from the Valencia Substation in Nogales. Project 1 is planned to replace 100% of the planned 75 poles in 1999 based on the funding profile.

Number of poles documented to be replaced = 75

Actual poles documented as being replaced = 26

Percent of poles in project replaced =  $26/75 = 34.7\%$

Number of poles that are not documented as being replaced =  $36 - 26 = 10$  poles

Number of remaining poles remaining to be replaced =  $75 - 26 = 49$

Cost per pole replaced =  $\$300,000/75 = \$4,000$  per pole

#### DATA REPORTED by CITIZENS for Pole Project 1

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 1 Budget					Budget for Project
			1999	2000	2001	2002	2003	
75	75	26	\$300,000	0	0	0	0	\$300,000

#### DATA REPORTED in UNSE Response for Pole Project 1

Actual Number Poles Replaced in area <sup>66</sup>	Estimated number of (defective) poles in project area <sup>67</sup>	Estimated Number of poles needed to be replaced	Project 1 Expenditures <sup>68</sup>					Total Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	75	36	Reported complete	0	0	0	0	Not reported

<sup>65</sup> Citizens Pole and Cable Replacement Plan, found in Exhibit M-D, page 2, 2<sup>nd</sup> column.

<sup>66</sup> UNSE Response, Exhibit 1, The ACTUAL number of poles in these 20 subdivisions, each having hundreds of homes and businesses is considerably higher than any numbers reported by UNSE. The only conclusion is that UNSE is reporting the estimated number of defective poles in the project area.

<sup>67</sup> *Ibid.*, has a column labeled "# of Poles (Estimated # of Poles in Area)". This is NOT the actual number of poles in these subdivisions, each having hundreds of homes and businesses. The only conclusion is that UNSE is reporting the ESTIMATED number of defective poles in the project area.

<sup>68</sup> UNSE did not report any expenditure data, not total spent or annual expenses from 1999 to 2003.

**Pole Project 2**

**Nogales West north area - Utility Pole Replacements – 75 total poles**

This area covers the north western part of Nogales on the "North Nogales" feeder circuit VA-6242 from the Valencia substation in Nogales. Project 2 is planned to replace 42.9% or  $(90/210 * 75 =)$  32 poles) of its total (75) in 1999 and then 10 or 11 poles per year for the next four years (2000-2003) based on the funding profile.

**Number of poles documented to be replaced = 75**

**Actual poles documented as being replaced = 28**

**Percent of poles in project replaced =  $28/75 =$  37.3%**

**Number of poles that are not documented as being replaced =  $44 - 28 =$  16 poles**

**Number of remaining poles remaining to be replaced =  $75 - 28 =$  47**

**Cost per pole replaced =  $\$25,000/300 =$  \$2,500 per pole**

**DATA REPORTED by CITIZENS for Pole Project 2**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 2 Budget					Budget for Project
			1999	2000	2001	2002	2003	
75	15	28	\$90,000	\$30,000	\$30,000	\$30,000	\$30,000	\$210,000

**DATA REPORTED in UNSE Response for Pole Project 2**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Project 2 Expenditures					Total Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	75	44	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

**Pole Project 3**

**Reconductor Mariposa Industrial Park in Nogales – 75 total poles**

The newest industrial area in Nogales is the Mariposa Industrial Park that is serviced by the Valencia substation on Grand Avenue probably the SW Nogales feeder circuit VA-6246. Project 3 is planned to reconductor 54.4% (equivalent to 41 poles) of its total 75 poles in 1999 and reconductor the remaining 45.6% or (equivalent to 34 poles) in 2000 based on the funding profile.

**Number of poles documented to be replaced = 75 [see footnote below]**

**Actual poles documented as being replaced = 1**

**Percent of poles in project replaced =  $1/1 = 100\%$**

**Number of poles that are documented as being replaced = 1**

**Number of poles that are not documented as being replaced =  $16 - 1 = 15$  poles**

**Number of remaining poles remaining to be replaced =  $75 - 1 = 74$**

**Cost per pole replaced =  $\$165,000/75 = \$2,200$**

**DATA REPORTED by CITIZENS for Pole Project 3**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 3 Budget					Budget for Project
			1999	2000	2001	2002	2003	
75	1 <sup>69</sup>	1 <sup>70</sup>	\$90,000	\$75,000	0	0	0	\$165,000

**DATA REPORTED in UNSE Response for Pole Project 3**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Project 3 Expenditures					Total Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	75	16	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

<sup>69</sup> Exhibit M-D, Citizens Pole and Cable Replacement Plan (1999-2003). This project is to replace the conductor. Initially, it appears, Citizens projected 75 poles to accomplish this task during 1999 and 2000 on page 2. In its Progress to Date (1999) on page 6, the estimate changed to 1 and the actual number replaced as one. Since reconductor can be accomplished without replacing any poles, it appears Citizens reduced to 1 pole for Project No. 3.

<sup>70</sup> *Ibid.*

**Pole Project 4**

**Downtown Nogales - Southeast Utility Pole Replacements – 300 total poles**

This area covers the downtown Nogales on the "Downtown Southeast" feeder circuits VA-6245 or VA-6247 from the Valencia Substation. Project 4 is planned to replace 54.4% (163 poles) of its total (300) in 1999 and the remaining 137 poles in 2000 based on the funding profile.

**Number of poles documented to be replaced = 300**

**Actual poles documented as being replaced = 74**

**Percent of poles in project replaced =  $74/300 = 34.7\%$**

**Number of poles that are not documented as being replaced =  $79 - 74 = 5$  poles**

**Number of remaining poles remaining to be replaced =  $300 - 74 = 226$**

**Cost per pole replaced =  $\$840,000/300 = \$2,800$  per pole**

**DATA REPORTED by CITIZENS for Pole Project 4**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 4 Budget					Budget for Project
			1999	2000	2001	2002	2003	
300	60	74	\$360,000	\$120,000	\$120,000	\$120,000	\$120,000	\$840,000

**DATA REPORTED in UNSE Response for Pole Project 4**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Project 4 Expenditures					Total Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	300	79	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

**Pole Project 5**

**Downtown Nogales - Northwest Utility Pole Replacements – 300 total poles**

This area covers the downtown Nogales on the "Downtown Northwest" feeder circuit VA-6245 or VA-6247 from the Valencia substation. Project 5 is planned to replace 44.2% or  $(380/860 * 300 =)$  132 poles of its total (300) in 1999 and the remaining 178 poles at 44 or 45 poles per year in 2000, 2001, 2002 and 2003 based on the funding profile.

**Number of poles documented to be replaced = 300**

**Actual poles documented as being replaced = 115**

**Percent of poles in project replaced =  $115/300 =$  38.3%**

**Number of poles that are not documented as being replaced =  $161 - 115 = 46$  poles**

**Number of remaining poles remaining to be replaced =  $300 - 115 = 186$**

**Cost per pole replaced =  $\$860,000/300 = \$2,867$  per pole**

**DATA REPORTED by CITIZENS for Pole Project 5**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 5 Budget					Budget for Project
			1999	2000	2001	2002	2003	
300	60	115	\$380,000	\$120,000	\$120,000	\$120,000	\$120,000	\$860,000

**DATA REPORTED in UNSE Response for Project 5**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Pole Project 5 Expenditures					Total Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	300	161	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

**Pole Project 6**

**Downtown Nogales - Southwest Utility Pole Replacements - 500 total poles**

This area covers the downtown Nogales on the "Downtown Southwest" feeder circuit VA-6245 or VA-6247 from the Valencia substation. Project 6 is planned to replace 37.2% ( $474/1274 * 500 =$ ) or 186 poles of its total (500) in 1999 and the remaining 314 poles at 78 or 79 a year in 2000, 2001, 2002, and 2003 based on the funding profile.

**Number of poles documented to be replaced = 500**

**Actual poles documented as being replaced = 91**

**Percent of poles in project replaced =  $91/500 = 18.2\%$**

**Number of poles that are not documented as being replaced =  $129 - 91 = 48$  poles**

**Number of remaining poles remaining to be replaced =  $300 - 91 = 209$**

**Cost per pole replaced =  $\$1,274,000/500 = \$2,548$  per pole**

DATA REPORTED by CITIZENS for Pole Project 6								
Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 6 Budget					
			1999	2000	2001	2002	2003	Budget for Project
500	100	91	\$474,000	\$200,000	\$200,000	\$200,000	\$200,000	\$1,274,000
DATA REPORTED in UNSE Response for Project 6								
Actual Number Poles Replaced in area	Estimated number of (defective ) poles in project area	Estimated Number of poles needed to be replaced	Pole Project 6 Expenditures					
			1999	2000	2001	2002	2003	Total Expended on Project
Not reported by UNSE	500	129	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported



**Pole Project 7**

**Downtown Nogales - Northeast Utility Pole Replacements - 300 total poles**

This area covers the downtown Nogales on the "Downtown Northeast" feeder circuit VA-6245 or VA-6247 from the Valencia substation. Project 7 is planned to replace 44.2% or  $(380/860 * 300 =)$  132 poles of its total (300) in 1999 and the remaining 168 poles in 2000 based on the funding profile.

**Number of poles documented to be replaced = 300**

**Actual poles documented as being replaced = 20**

**Percent of poles in project replaced =  $20/300 =$  6.7%**

**Number of poles that are not documented as being replaced =  $55 - 20 =$  35 poles**

**Number of remaining poles remaining to be replaced =  $300 - 20 =$  280**

**Cost per pole replaced =  $\$860,000/300 =$  \$2,867 per pole**

**DATA REPORTED by CITIZENS for Pole Project 7**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 7 Budget					
			1999	2000	2001	2002	2003	Budget for Project
300	60	20	\$380,000	\$120,000	\$120,000	\$120,000	\$120,000	\$860,000

**DATA REPORTED in UNSE Response for Pole Project 7**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Project 7 Expenditures					
			1999	2000	2001	2002	2003	Total Expended on Project
Not reported by UNSE	300	55	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

**Pole Project 8**

**Beatus Estates Subdivision Utility Pole Replacements – 150 total poles**

The Beatus Estates subdivision is a spread-out community in the City of Nogales on the East Nogales feeder circuit VA-6243 from the Valencia substation. Project 8 is planned to replace 20% (180/420 \* 150 =) or 62 of its total (150) in 1999 and the remaining 88 poles at 22 per year in 2000, 2001, 2002, and 2003 based on the funding profile. Project 8 for the Beatus Estates Subdivision has not replaced any utility poles. Project 8 does not appear to have been started.

Number of poles documented to be replaced = 150

Actual poles documented as being replaced = 0

Percent of poles in project replaced =  $0/150 = 0.0\%$

Number of poles that are not documented as being replaced =  $0 - 0 = 0$  poles

Number of remaining poles remaining to be replaced =  $150 - 0 = 150$

Cost per pole replaced =  $\$420,000/150 = \$2,800$  per pole

**DATA REPORTED by CITIZENS for Pole Project 8**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 8 Budget					Budget for Project
			1999	2000	2001	2002	2003	
150	0	0	\$180,000	\$60,000	\$60,000	\$60,000	\$60,000	\$420,000

**DATA REPORTED in UNSE Response for Project 8**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Pole Project 8 Expenditures					Total Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	150	0	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

**Pole Project 9**

**Valle Verde Subdivision Utility Pole Replacements – 300 total poles**

The Valle Verde subdivision is an important fairly dense community in the City of Nogales that is serviced by the Valencia substation probably on the North feeder circuit VA-6242. Project 9 is planned to replace 20% ( $180/420 * 150 =$ ) or 62 of its total (150) in 1999 and the remaining 88 poles at 22 per year in 2000, 2001, 2002, and 2003 based on the funding profile.

**Number of poles documented to be replaced = 150**

**Actual poles documented as being replaced = 106**

**Percent of poles in project replaced =  $106/150 =$  70.6%**

**Number of poles that are not documented as being replaced =  $156 - 106 = 50$  poles**

**Number of remaining poles remaining to be replaced =  $300 - 106 = 194$**

**Cost per pole replaced =  $\$420,000/150 = \$2,800$  per pole**

**DATA REPORTED by CITIZENS for Pole Project 9**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 9 Budget					Budget for Project
			1999	2000	2001	2002	2003	
150	30	106	\$180,000	\$60,000	\$60,000	\$60,000	\$60,000	\$420,000

**DATA REPORTED in UNSE Response for Project 9**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Pole Project 9 Expenditures					Total Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	300	156	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

**Pole Project 10**

**Chula Vista Subdivision – 50 total poles to be replaced**

The Chula Vista subdivision is an important and large community just north of the City of Nogales boundary that is serviced by the Valencia substation probably on the North Nogales feeder circuit VA-6242. Project 10 is planned to replace 42.8% ( $60/140 * 50 =$ ) or 21 poles of its total (50) in 1999 and the remaining 39 poles at about 10 per year in 2000, 2001, 2002, and 2003 based on the funding profile. Project 10 for the Chula Vista subdivision did not replaced any utility poles. Project 10 does not appear to have been started.

**Number of poles documented to be replaced = 50**

**Actual poles documented as being replaced = 0**

**Percent of poles in project replaced =  $0/50 =$  0.0%**

**Number of poles that are not documented as being replaced =  $0 - 0 = 0$  poles**

**Number of remaining poles remaining to be replaced =  $50 - 0 = 50$**

**Cost per pole replaced =  $\$140,000/50 = \$2,800$  per pole**

**DATA REPORTED by CITIZENS for Pole Project 10**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 10 Budget					
			1999	2000	2001	2002	2003	Budget for Project
50	2	0	\$60,000	\$20,000	\$20,000	\$20,000	\$20,000	\$140,000

**DATA REPORTED in UNSE Response for Pole Project 10**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Project 10 Expenditures					
			1999	2000	2001	2002	2003	Total Expended on Project
Not reported by UNSE	50	0	Not reported	Reported complete	Not reported	Not reported	Not reported	Not reported

**Pole Project 11**

**Activate Circuit 6246 (s/b 6246) – 100 total poles**

The Southwest Nogales feeder circuit VA-6246 from the Valencia substation shares a pole with the West Nogales feeder circuit VA-6241. The Citizens Plan of Action clearly stated:

"This Circuit shares a pole with Circuit 6241 (see Project 12). Citizens can reduce the stress on the poles and eliminate potential outages due to structural failures. Activation of Circuit 6246 will allow Citizens to split the load on the west-side of Nogales, and increase the ability to back feed 6241 in the event of damage."<sup>71</sup>

Project 11 is planned to replace 42.9% ( $180/420 * 100 =$ ) or 43 poles of its total (100) in 1999 and the remaining 67 poles at 7 to 8 per year in 2000, 2001, 2002, and 2003 based on the funding profile. Project 11 has not installed any utility poles necessary to activate Circuit 6246. Project 11 does not appear to have been started.

Number of poles documented to be replaced = 100

Actual poles documented as being replaced = 0

Percent of poles in project replaced =  $0/100 =$  0.0%

Number of poles that are not documented as being replaced =  $74 - 1 = 15$  poles

Number of remaining poles remaining to be replaced =  $300 - 74 = 226$

Cost per pole replaced =  $\$320,000/100 = \$4,200$  per pole

**DATA REPORTED by CITIZENS for Pole Project 11**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 11 Budget					Budget for Project
			1999	2000	2001	2002	2003	
100	0	0	\$180,000	\$60,000	\$60,000	\$60,000	\$60,000	\$420,000

**DATA REPORTED in UNSE Response for Project 11**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Pole Project 11 Expenditures					Total Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	100	0	Not reported	Reported complete	Not reported	Not reported	Not reported	Not reported

<sup>71</sup> Exhibit M-E, page 3 of 4.

**Pole Project 12**

**Circuit 6241 – 50 total poles**

This new West Nogales feeder circuit VA-6241 in the Mariposa Industrial area. This circuit provides power to the Carondelet Holy Cross Hospital to services most of the City of Nogales and the county. The Plan of Action stated:

"Some of the pole replacements involve the relocation of circuits, as in the case of Circuits 6241 and 6246. Circuit 6241 feeds the west-side of Nogales (and feeds the hospital). Circuit 6241 shares a pole with Circuit 6246. By relocating a portion of 6241, Citizens can reduce the stress on the poles and eliminate potential outages due to structural failures. Activation of Circuit 6246 will allow Citizens to split the load on the west-side of Nogales, and increase the ability to back feed 6241 in the event of damage."<sup>72</sup>

Project 12 is planned to replace 42.9% ( $60/140 * 50 =$ ) or 20 poles of its total (50) in 1999 and the remaining 30 poles at 7 or 8 poles per year in 2000, 2001, 2002, and 2003 based on the funding profile. Project 12 has not installed any utility poles necessary for Circuit 6241. Project 11 does not appear to have been started.

Number of poles documented to be replaced = 50

Actual poles documented as being replaced = 0

Percent of poles in project replaced =  $0/50 =$  0.0%

Number of poles that are not documented as being replaced =  $0 - 0 = 0$  poles

Number of remaining poles remaining to be replaced =  $50 - 0 = 50$

Cost per pole replaced =  $\$140,000/50 = \$2,000$  per pole

**DATA REPORTED by CITIZENS for Pole Project 12**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 12 Budget					
			1999	2000	2001	2002	2003	Budget for Project
50	10	0	\$60,000	\$20,000	\$20,000	\$20,000	\$20,000	\$140,000

**DATA REPORTED in UNSE Response for Project 12**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Pole Project 12 Expenditures					
			1999	2000	2001	2002	2003	Total Expended on Project
Not reported by UNSE	50	0	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

<sup>72</sup> Exhibit M-3, page 3 of 4.

**Pole Project 13**

**Meadow Hills North Subdivision Utility Pole Replacements – 75 total poles**

Meadow Hills is a fairly new, large subdivision in the City of Nogales served by the Valencia substation on the North Nogales feeder circuit VA-6241. Several thousand people live in this development. Project 13 is planned to replace 42.8% ( $90/210 * 75 =$ ) or 32 poles of its total (75) in 1999 and the remaining 43 poles at about 11 each year in 2000, 2001, 2002, and 2003 based on the funding profile. Project 13 for the Meadow Hills North subdivision did not replaced any utility poles. Project 13 does not appear to have been started.

Number of poles documented to be replaced = 75

Actual poles documented as being replaced = 0

Percent of poles in project replaced =  $0/75 = 0.0\%$

Number of poles that are not documented as being replaced =  $75 - 0 = 75$  poles

Number of remaining poles remaining to be replaced =  $75 - 0 = 75$

Cost per pole replaced =  $\$210,000/75 = \$2,800$  per pole

**DATA REPORTED by CITIZENS for Project 13**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Pole Project 13 Budget					
			1999	2000	2001	2002	2003	Budget for Project
75	15	0	\$90,000	\$30,000	\$30,000	\$30,000	\$30,000	\$210,000

**DATA REPORTED in UNSE Response for Project 13**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Pole Project 13 Expenditures					
			1999	2000	2001	2002	2003	Total Expended on Project
Not reported by UNSE	75	5.5 <sup>73</sup>	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

<sup>73</sup> UNSE Response, Exhibit 1, shows 11 poles replaced for Projects 13 and 14, thus 5.5 were allocated for Meadow Hills North and 5.5 for Meadow Hills South.

**Pole Project 14**

**Meadow Hills South Subdivision Utility Pole Replacements – 75 total poles**

Meadow Hills is a fairly new, large subdivision in the City of Nogales served by the Valencia substation on the North Nogales feeder circuit VA-6241. Several thousand people live in this development. Project 14 is planned to replace 42.8% ( $90/210 * 75 =$ ) or 32 poles of its total (75) in 1999 and the remaining 43 poles at about 11 each year in 2000, 2001, 2002, and 2003 based on the funding profile. Project 14 for the Meadow Hills South subdivision did not replaced any utility poles. Project 14 does not appear to have been started.

**Number of poles documented to be replaced = 75**

**Actual poles documented as being replaced = 0**

**Percent of poles in project replaced =  $0/75 = 0.0\%$**

**Number of poles that are not documented as being replaced =  $75 - 0 = 75$  poles**

**Number of remaining poles remaining to be replaced =  $75 - 0 = 75$**

**Cost per pole replaced =  $\$210,000/75 = \$2,800$  per pole**

**DATA REPORTED by CITIZENS for Pole Project 14**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 14 Budget					Budget for Project
			1999	2000	2001	2002	2003	
75	15	0	\$90,000	\$30,000	\$30,000	\$30,000	\$30,000	\$210,000

**DATA REPORTED in UNSE Response for Pole Project 14**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Project 14 Expenditures					Total Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	75	5.5 <sup>74</sup>	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

<sup>74</sup> UNSE Response, Exhibit 1, shows 11 poles replaced for Projects 13 and 14, thus 5.5 were allocated for Meadow Hills North and 5.5 for Meadow Hills South.



**Pole Project 15**

**115 kV Transmission Line Replacement Utility Poles – 20 total poles**

This pole replacement project is for 20 poles on the 115 kV transmission line between the Nogales Tap in south Tucson and all four substations in Santa Cruz County. Project 15 is planned to replace 100% of its total 20 poles in 1999 based on the funding profile. Project 15 will replace poles and/or H-frames on the existing 115 kV Transmission Line. No transmission line poles were replaced. Project 15 does not appear to have been started.

**Number of poles documented to be replaced = 20**

**Actual poles documented as being replaced = 0**

**Percent of poles in project replaced =  $0/20 = 0.0\%$**

**Number of poles that are not documented as being replaced =  $0 - 0 = 0$  poles**

**Number of remaining poles remaining to be replaced =  $20 - 0 = 20$**

**Cost per pole replaced =  $\$320,000/20 = \$16,000$  per pole**

**DATA REPORTED by CITIZENS for Pole Project 15**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 15 Budget					
			1999	2000	2001	2002	2003	Budget for Project
20	2	0	\$320,000	0	0	0	0	\$320,000

**DATA REPORTED in UNSE Response for Pole Project 15**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Project 15 Expenditures					
			1999	2000	2001	2002	2003	Total Expended on Project
Not reported by UNSE	20	0	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

**Pole Project 16**

**Highway 82 – Utility Pole Replacements – 250 total poles**

This area is served by the Sonoita substation probably on the Southeast Rio Rico, East County feeder circuit SA-6206. The Citizens Plan of Action stated:

"A major portion of the pole replacements will be done along Highway 82 and into the mountains in the Locheil area. This loop will allow Citizens to sectionalize and isolate damaged portions of line, thereby keeping the highest number of customers in service."<sup>75</sup>

Project 16 is planned to replace 36.4% or  $(275/755 * 250 =)$  or 91 poles of its total (250) in 1999 and the remaining 149 poles at 37 or 38 poles per year in 2000, 2001, 2002, and 2003 based on the funding profile.

**Number of poles documented to be replaced = 250**

**Actual poles documented as being replaced = 148**

**Percent of poles in project replaced =  $148/250 =$  59.2%**

**Number of poles that are not documented as being replaced =  $219 - 148 =$  71 poles**

**Number of remaining poles remaining to be replaced =  $250 - 148 =$  102**

**Cost per pole replaced =  $\$755,000/250 =$  \$3,200 per pole**

**DATA REPORTED by CITIZENS for Pole Project 16**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 16 Budget					
			1999	2000	2001	2002	2003	Budget for Project
250	60	148	\$275,000	\$120,000	\$120,000	\$120,000	\$120,000	\$755,000

**DATA REPORTED in UNSE Response for Project 16**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Pole Project 16 Expenditures					
			1999	2000	2001	2002	2003	Total Expended on Project
Not reported by UNSE	250	219	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

<sup>75</sup> Exhibit M-E, page 3 of 4.

**Pole Project 17**

**Old Tucson Road Utility Pole Replacements – 10 total poles to be replaced**

The Old Tucson Road goes from Grand Avenue in Nogales to Ruby Road in Rio Rico probably served by the Valencia substation on the North Nogales feeder circuit SA-6242. Project 17 is planned to replace 100% or all 10 poles in 1999 based on the funding profile.

**Number of poles documented to be replaced = 10**

**Actual poles documented as being replaced = 9**

**Percent of poles in project replaced =  $9/10 = 90.0\%$**

**Number of poles that are not documented as being replaced =  $19 - 9 = 10$  poles**

**Number of remaining poles remaining to be replaced =  $10 - 9 = 1$**

**Cost per pole replaced =  $\$25,000/10 = \$2,500$  per pole**

**DATA REPORTED by CITIZENS for Pole Project 17**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 17 Budget					Budget for Project
			1999	2000	2001	2002	2003	
10	10	9	\$25,000	0	0	0	0	\$25,000

**DATA REPORTED in UNSE Response for Pole Project 17**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Project 17 Expenditures					Total Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	10	18	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

**Pole Project 18**

**Rio Rico Highway Crossings Utility Pole Replacements – 0 total poles**

Project 18 is planned to be completed in 1999 based on the funding profile. There are three feeder circuits that might cross Interstate 19; from Caññez substation the Northwest feeder circuit CZ-8202 and Sonoita substation the Midwest Rio Rico feeder circuit SA-6204. The UNSE Response only indicated this project was reported complete in 1999. Actual completion is unknown.

Number of poles that are documented as to be replaced = none

**DATA REPORTED by CITIZENS for Pole Project 18**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 18 Budget					Budget for Project
			1999	2000	2001	2002	2003	
none	none	none	\$126,000	0	0	0	0	\$128,000

**DATA REPORTED in UNSE Response for Pole Project 18**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Project 18 Expenditures					Total Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	300	79	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

**Pole Project 19**

**Rio Rico Industrial Park Utility Pole Replacements – 25 total poles**

The Rio Rico Industrial Park contains over 25 produce packing plants which comprise the largest business in Santa Cruz County. Further, the Nogales International Treatment Plant is in this complex which is the largest single electricity customer in the County. The Sonoita substation services this area on the Rio Rico Industrial Plant feeder circuit SA-6207. Project 19 was planned to be completed in 1999 based on the funding profile.

**Number of poles documented to be replaced = 25**

**Actual poles documented as being replaced = 16**

**Percent of poles in project replaced =  $16/25 = 64\%$**

**Number of poles that are not documented as being replaced =  $25 - 16 = 9$  poles**

**Number of remaining poles remaining to be replaced =  $25 - 16 = 9$**

**Cost per pole replaced =  $\$100,000/25 = \$4,000$  per pole**

**DATA REPORTED by CITIZENS for Pole Project 19**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 19 Budget					Budget for Project
			1999	2000	2001	2002	2003	
25	1	16	\$100,000	0	0	0	0	\$100,000

**DATA REPORTED in UNSE Response for Pole Project 19**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Project 19 Expenditures					Total Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	25	21	Reported complete	Not reported	Not reported	Not reported	Not reported	Not reported

**Pole Project 20**

**Flux Canyon Area Utility Pole Replacements – 500 total poles**

Flux Canyon originates to the west of SR 82 and crosses the highway south of the Town of Patagonia.

This is the eastern part of Circuit CZ-8203 which was reported by the Engineering Report<sup>76</sup> included in testimony of Mr. Steve Taylor<sup>77</sup> as the worst performing feeder line for the past two years in the UNS Electric service area, including Mohave County.

Further, Circuit CZ-8203 is a long radial line, going over 100 miles from the Cañez (North Rio Rico) Substation<sup>78</sup>, east through Rio Rico homes, Pendleton Drive, east to Lake Patagonia, crossing SR 82, going up Flux Canyon, past several small mine operations, through San Rafael Valley and several wineries, past the village of Locheil, across the US-Mexican border, to the Sonora village of Santa Cruz. I have had several complaints reported to me and also to the ACC concerning the performance along Circuit CZ-8203, which averaged 141 minutes of outage per customer in 2005 and 125 hours per customer in 2006.<sup>79</sup>

One winery owner reported over 180 hours of outage in the past year using the automated diesel generator logger when there was no power. I tried to report this outage during the evidentiary hearings (proposed Magruder Exhibit M-27- not entered into the record) which was

<sup>76</sup> Engineering Report, Staff's Assessment of: Quality of Service, Used and Useful Capital Assets, Construction Work in Progress Capital Assets, Black Mountain Generation Station, by Steve Taylor, of 28 June 2007, hereafter "**Staff Engineering Report**".

<sup>77</sup> Direct Testimony of Steve Taylor, Utility Engineer, Utilities Division, Arizona Corporation Commission, of 28 June 2007

<sup>78</sup> Information received seven years ago while on the Joint Santa Cruz County/City of Nogales Energy Commission, showed a feeder circuit "SE Rio Rico/East County" feeder circuit coming from the Sonoita substation while the Staff Engineering Report and the designation "C" states from the Canez substation.

<sup>79</sup> Staff Engineering Report, pages 6 and 7 states:

"Canez Feeder C-8203 [CZ-8203] serving N. Pendleton Dr (Santa Cruz County) is a very long (approximately 100 miles) 13 kV distribution feeder serving residential and light commercial load in a partially mountainous area between Tucson and Nogales and east of Interstate 19. Staff inspected portions of the feeder on May 31, 2007 with UNS Electric personnel and observed that problems were being regularly addressed with the addition of lightening arresters in selected locations, replacement of wood poles with steel poles in unstable soil areas along the Santa Cruz river, cross arm installation at selected locations to increase phase spacing, and fairly aggressive and recent tree trimming in the high vegetation areas close to the Santa Cruz river. Additional action being considered includes transferring some parts of this feeder to other feeders to reduce the length of line exposed and adding field reclosures (one presently exists) to isolate areas that have faulted in lieu of larger segments of the feeder. Since the area has topography which tends to make it subject to summer thunderstorms with resultant lightening and wind impacts and the overhead line exposure is high (about 50 percent of the 100 mile line is overhead), the feeder will likely remain as one which will require continued attention in the future. Staff was concerned that voltage degradation might be a problem at some locations on this feeder due to its long length; however, UNS Electric advised that maintaining the proper voltage has not been a problem. Staff believes UNS Electric has taken the appropriate steps to minimize customer outages as evidenced by the work of the last few years and is prepared to continue improvements of this feeder."

1 deemed, after an objection, as being too late since it was not in my pre-filed testimony. I had  
2 received by email early during those hearings.

3 The Citizens plan of action stated:

4 "A major portion of the pole replacements will be done along Highway 82 and into the mountains  
5 in the Locheil area. This loop will allow Citizens to sectionalize and isolate damaged portions of  
6 line; thereby keeping the highest number of customers in service."<sup>80</sup>

7 Project 20 planned to replace 37.5% ( $600/1600 * 500 =$ ) or 188 poles of its total (500) in 1999  
8 and the remaining 212 poles at 43 per year in 2000, 2001, 2002, and 2003 based on the funding  
9 profile. Project 20 in the Flux Canyon area did not replace any utility poles. Project 20 does not  
10 appear to been started.

11  
12 Number of poles documented to be replaced = 500

13 Actual poles documented as being replaced = 0

14 Percent of poles in project replaced =  $0/500 =$  0.0%

15 Number of poles that are not documented as being replaced =  $500 - 0 = 500$  poles

16 Number of remaining poles remaining to be replaced =  $500 - 0 = 500$

17 Cost per pole replaced =  $\$165,000/300 = \$2,800$  per pole

18  
19 **DATA REPORTED by CITIZENS for Pole Project 20**

Total Number of Poles for Project	Poles to be replaced in 1999	Actual Poles replaced to date (1999)	Project 20 Budget					Budget for Project
			1999	2000	2001	2002	2003	
500	100	0	\$800,000	\$200,000	\$200,000	\$200,000	\$200,000	\$1,600,000

24 **DATA REPORTED in UNSE Response for Pole Project 20**

Actual Number Poles Replaced in area	Estimated number of (defective) poles in project area	Estimated Number of poles needed to be replaced	Project 20 Expenditures					Total Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	500	200	Not reported	Reported complete	Not reported	Not reported	Not reported	Not reported

31  
32  
33  
34  
35 <sup>80</sup> Exhibit M-E, page 3 of 4.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35



**Exhibit M-G**

**Data for Defective Underground Cable Replacement Projects**

This Exhibit contains data reported by the Citizens approved Plan of Action and data reported in the UNSE Response Exhibit 2 (no title). The table formats that follow are identical for each project. Each project is briefly described in terms of its Project Number and title, the total number of defective cable-feet in the Plan of Action listed to be replaced. As each project has a geographic location. The budget data and schedule for each Project were provided in the Plan of Action. Using this financial data, the number of cable-feet to be replaced was estimated for each year between 1999 and 2003.

Additional information provided included the number of cable-feet documented to be replaced, number of actual cable-feet documented as being replaced, and the completion percentage in the Project that have been actually replaced.

The following nine projects, totaling some 122,398 cable-feet, as shown below, **have NO documented pole replacements** :

Project 1 – Mariposa Manor subdivision, Nogales (7,677 cable-feet)

Project 2 – Monte Carlo subdivision, Nogales (12,040 cable-feet)

Project 4 – Preston Trailer Park, Nogales (3,633 cable-feet)

Project 5 – Tubac Country Club subdivision, Tubac (6,900 cable-feet)

Project 7 – Palo Prado subdivision (13,500 cable-feet)

Project 8 – Empty Saddles subdivision (8,180 cable-feet)

Project 9 – Mt. Hopkins Smithsonian-Harvard Observatory, Amado (52,800 cable-feet)

Project 10 – Meadow Hills subdivision, Nogales (15,840 cable-feet)

Project 20 – Rio Rico Resort (1,828 cable-feet)

Three other projects showed some progress, although less than 51% complete, with lowest documented progress including:

Project 2 – Monte Carlo subdivision (12,040 cable-feet)	20.4%
---	-------

Project 11 – Canyon Del Oro/Vista Del Cielo area (4,500 cable-feet)	40.9% <sup>12</sup>
---	---------------------

Project 3 – Rio Rico Urban 3 (28,160 cable-feet)	50.3%
--	-------

The final cable replacement project exceeded the planned number of cable-feet

Project 6 – Tubac Country Club Valley subdivision (4,300 cable-feet)	169.5%
--	--------

The information in this table for each project, include data reported by Citizens and data reported in the UNSE Response.

In the "Data Reported by Citizens" are all from the Citizens Plan of Action:

- 1 e. First Column, "Total Number of Cable-Feet for Project,"<sup>81</sup> this is the total feet Citizens reported  
2 planned to replace in the Project.
- 3 f. Second Column, "Cable-Feet to be Replaced in 1999"<sup>82</sup>
- 4 g. Third Column, "**Actual** Cable-Feet Replaced to Date (1999)"<sup>83</sup> This is a 1999 snapshot of the  
5 progress to date and is the last "Actual Number" replacement data received.
- 6 h. Fourth Column, "Project X Budget" for 1999, 2000, 2001, 2002, and 2003 (first five lower  
7 columns)<sup>84</sup> and "Estimated Budget for Project"<sup>85</sup> in the sixth lower column
- 8 In the Data Reported in the UNSE Response, Exhibit 1:
- 9 a. First Column, "Actual cable-feet Replaced in area,"<sup>86</sup> was not reported in any project.
- 10 e. Second Column, "Total cable-feet to be replaced," is exactly the same are reported by  
11 Citizens Plan of Action.<sup>87</sup>
- 12 f. Third Column, "Total cable-feet remaining"<sup>88</sup>
- 13 g. Fourth Column, "Project X Expenditures" for 199, 2000, 2001, 2002, and 2003 (first five lower  
14 columns) and "Total Expended on Project" in the sixth lower column. The UNSE Response did  
15 not include the cost for any year or total for any project.<sup>89</sup>
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25
- 26
- 27

28 <sup>81</sup> Exhibit M-D, page 3 of 6, second column.

29 <sup>82</sup> *Ibid.* page 6 of 6, third column.

30 <sup>83</sup> *Ibid.* page 6 of 6, fourth column, under the Progress to Date, is labeled "Actual Number"

31 <sup>84</sup> *Ibid.* page 3 of 6, fourth to seventh columns.

32 <sup>85</sup> This is the total of the years 1999 through 2003.

33 <sup>86</sup> The UNSE Response included "Feet of Cable Needed" which was the same as Citizens Cable  
Replacements data total on Exhibit M-D, page 3 of 6. this is NOT the number of cable-feet replaced.

34 <sup>87</sup> Same as Exhibit M-D, on page 3 of 6, second column. UNSE might be confused with page 6, for "Cable  
Replacements – Progress to Date" where data through 1999 only were reported.

35 <sup>88</sup> This was not provided in UNSE Response Exhibit 2.

<sup>89</sup> UNSE included "Year Completed" without any basis in its Exhibit 2 and indicated in either 1999, 2000 or  
2003.

### Cable Project 1

#### Mariposa Manor Subdivision – Underground Cable Replacements – 7, 677 total feet<sup>90</sup>

This project is in the northwestern part of the City of Nogales and is planned to replace annually 20% (7,766/5 =) or 1,535 cable-feet of underground cable, of the planned total project of 7,677 feet, each year between 1999 and 2003 based on the funding profile.

**Number of cable- feet documented to be replaced = 7,677 feet**

**Actual cable-feet documented as being replaced = 0 feet**

**Percent of cable-feet in project replaced = 0/7,677 = 0.0%**

**Number of cable-feet not documented as replaced = 7,677 – 1,535 = 7,677 feet remain**

**Total remaining cost of project = \$**

**Cost per cable-foot to be replaced = \$307,080/7,677 = \$40.00 per cable-foot**

**Cost to complete Project = 6,140 \* 40 = \$307,080**

#### **DATA REPORTED by CITIZENS for Cable Project 1**

Total Number of Cable-Feet for Project	Cable-Feet to be replaced in 1999	Actual Cable-Feet replaced to date (1999)	Project 1 Budget					Budget for Project
			1999	2000	2001	2002	2003	
7,677	1,535	0	\$61,416	\$61,416	\$61,416	\$61,416	\$61,416	\$307,080

#### **DATA REPORTED in UNSE Response for Cable Project 1**

Actual cable-feet Replaced in area	Total cable-feet to be replaced	Total cable-feet remaining	Project 1 Expenditures					Total Estimated Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	7,677	7,667	\$61,416 Completed	0	0	0	0	\$61,416

<sup>90</sup> Citizens Pole and Cable Replacement Plan, found in Exhibit M-D, page 2, 2<sup>nd</sup> column.

**Cable Project 2**

**Monte Carlo Subdivision – Underground Cable Replacements – 12,040 total feet**

This project is in the northern part of Nogales and is planned to replace annually 20% or (12,040/5 =) or 2,408 cable-feet of underground cable, of the planned total project of 12,040 feet, during each year between 1999 and 2003 based on the funding profile.

**Number of cable- feet documented to be replaced = 12,040 feet**

**Actual cable-feet documented as being replaced = 2,454 feet**

**Percent of cable-feet in project replaced = 2,454/12,040 = 20.4%**

**Number of cable-feet not documented as replaced = 12,040 – 2,454 = 9,586 feet remain**

**Cost per cable-foot to be replaced = \$481,600/12,040 = \$40.02 a cable-foot**

**Cost to complete Project = 9,586 \* 40.02 = \$386,632**

**DATA REPORTED by CITIZENS for Cable Project 2**

Total Number of Cable-Feet for Project	Cable-Feet to be replaced in 1999	Actual Cable-Feet replaced to date (1999)	Project 2 Budget					Budget for Project
			1999	2000	2001	2002	2003	
12,040	2,408	2,454	\$96,320	\$96,320	\$96,320	\$96,320	\$96,320	\$481,600

**DATA REPORTED in UNSE Response for Cable Project 2**

Actual cable-feet Replaced in area	Total cable-feet to be replaced	Total cable-feet remaining	Project 2 Expenditures					Total Estimated Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	12,040	9,586	\$48,160 Completed	\$43,600	0	0	0	\$91,760

**Cable Project 3**

**Rio Rico Urban 3 -**

**Underground Cable Replacements - 28,160 total feet**

This project is in Rio Rico, a suburban community, north of the City of Nogales, and is planned to annually to replace 20% ( $28,160/5 =$ ) or 5,632 feet of underground cable, of the planned total project of 28,160 feet, during each year between 1999 and 2003 based on the funding profile.

**Number of cable- feet documented to be replaced = 28,160 feet**

**Actual cable-feet documented as being replaced = 14,157 feet**

**Percent of cable-feet in project replaced =  $14,157/28,160 =$  50.3%**

**Number of cable-feet not documented as replaced =  $28,160 - 14,157 =$  14,004 feet remain**

**Cost per cable-foot to be replaced =  $\$1,126,400/28,160 =$  \$40 per cable-foot**

**Cost to complete Project =  $14,004 * 40 =$  \$560,160**

**DATA REPORTED by CITIZENS for Cable Project 3**

Total Number of Cable-Feet for Project	Cable-Feet to be replaced in 1999	Actual Cable-Feet replaced to date (1999)	Project 3 Budget					Budget for Project
			1999	2000	2001	2002	2003	
28,160	5,632	14,157	\$225,280	\$225,280	\$225,280	\$225,280	\$225,280	\$1,126,400

**DATA REPORTED in UNSE Response for Cable Project 3**

Actual cable-feet Replaced in area	Total cable-feet to be replaced	Total cable-feet remaining	Project 3 Expenditures					Total Estimated Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	28,160	8,189	\$327,560 Completed	0	0	0	0	\$327,560

**Cable Project 4**

**Preston Trailer Park -**

**Underground Cable Replacements - 3,633 total feet**

This project is in Rio Rico, a suburban community, north of the City of Nogales, and is planned to annually to replace 20% ( $3,633/5 =$ ) or 727 feet of underground cable, of the planned total project of 3,633 feet, during each year between 1999 and 2003 based on the funding profile.

The UNSE Response Exhibit 2 indicated Capital Expenditures of \$57,600 in 2000 and project completed in 2000. The company reported no cable replaced in 1999. Thus, there are no expenditures for 1999. If \$67,600 was expended in 2000, then, based on the Budge cost of \$35.87 per cable-foot, then 1,882 feet of the 3,633 feet in the project have been replaced.

Number of cable- feet documented to be replaced =	3,633 feet
<u>Actual cable-feet documented</u> as being replaced =	0 feet
Percent of cable-feet in project replaced = $0/130,320 =$	0.0%
Number of cable-feet not documented as replaced = $3,633 - 1,882 =$	1,751 feet remain
Cost per cable-foot to be replaced = $\$130,320/3,633 =$	\$35.87 per cable-foot
Cost to complete Project = $(3,633 * 35.87) - 67,600 =$	\$62,720

**DATA REPORTED by CITIZENS for Cable Project 4**

Total Number of Cable-Feet for Project	Cable-Feet to be replaced in 1999	Actual Cable-Feet replaced to date (1999)	Project 4 Budget					Budget for Project
			1999	2000	2001	2002	2003	
3,663	727	0	\$29,064	\$29,064	\$29,064	\$29,064	\$29,064	\$130,320

**DATA REPORTED in UNSE Response for Cable Project 4**

Actual cable-feet Replaced in area	Total cable-feet to be replaced	Total cable-feet remaining	Project 4 Expenditures					Total Estimated Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	3,663	1,751	0	\$67,600 Complete	0	0	0	\$67,600

**Cable Project 5**

**Tubac Country Club Subdivision –**

**Underground Cable Replacements – 6,900 total feet**

This project is in Tubac, a village south of the Pima County line, in the Tubac Country Club subdivision. This project to annually to replace 20% (6,900/5 =) or 1,380 feet of underground cable, of the planned total project of 6,900 feet, during each year between 1999 and 2003 based on the funding profile.

Number of cable- feet documented to be replaced = 6,900 feet  
Actual cable-feet documented as being replaced = 0 feet  
Percent of cable-feet in project replaced = 0/6,900 = 0.0%  
Number of cable-feet not documented as replaced = 6,900– 0 = 6,900 feet remain  
Cost per cable-foot to be replaced = \$276,000/6,900 = \$40 per cable-foot  
Cost to complete Project = 6,900 \* 40 – 0 = \$276,000

**DATA REPORTED by CITIZENS for Cable Project 5**

Total Number of Cable-Feet for Project	Cable-Feet to be replaced in 1999	Actual Cable-Feet replaced to date (1999)	Project 5 Budget					Budget for Project
			1999	2000	2001	2002	2003	
6,900	1,380	0	\$55,200	\$55,200	\$55,200	\$55,200	\$55,200	\$276,000

**DATA REPORTED in UNSE Response for Cable Project 5**

Actual cable-feet Replaced in area	Total cable-feet to be replaced	Total cable-feet remaining	Project 5 Expenditures					Total Estimated Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	6,900	6,900	\$55,200 Completed	0	0	0	0	\$55,200

**Cable Project 6**  
**Tubac Country Club Valley Subdivision -**  
**Underground Cable Replacements - 4,300 total feet**

This project is in Tubac, a village south of the Pima County line, in the Tubac Country Club Valley subdivision. This project is planned to annually to replace 20% ( $4,300/5 =$ ) or 860 feet of underground cable, of the planned total project of 4,300 feet, during each year between 1999 and 2003 based on the funding profile. UNSE Response Exhibit 2 reported \$34,400 was expended to complete a \$172,000 project that installed 169.5% more cable than planned. This is neither realistic nor feasible as this equates to \$12.33 per cable-foot, considerably less the planned cost of \$40.00 and approximately 70% less than any other cable replacement project on a cost/foot basis. Using \$40/cable-foot, then \$34,400 expended is 860 feet of the 4,300 feet in this project. **The data from UNSE are erroneous, as \$137,600 could not have been expended to complete this project.**

Number of cable- feet documented to be replaced =	4,300 feet
<u>Actual cable-feet documented</u> as being replaced =	7,290 feet
Percent of cable-feet in project replaced = $7,290/4,300 =$	169.5%
Number of cable-feet not documented as replaced = $4,300 - 4,300 =$	0 feet remain
Cost per cable-foot to be replaced = $\$172,000/4,300 =$	\$40 per cable-foot
<b>Cost to complete Project = <math>\\$172,000 - \\$34,400 =</math></b>	<b>\$137,600</b>

**DATA REPORTED by CITIZENS for Cable Project 6**

Total Number of Cable-Feet for Project	Cable-Feet to be replaced in 1999	Actual Cable-Feet replaced to date (1999)	Project 6 Budget					Budget for Project
			1999	2000	2001	2002	2003	
4,300	1,380	2,790	\$34,400	\$34,400	\$34,400	\$34,400	\$34,400	\$172,000

**DATA REPORTED in UNSE Response for Cable Project 6**

Actual cable-feet Replaced in area	Total cable-feet to be replaced	Total cable-feet remaining	Project 6 Expenditures					Total Estimated Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	4,300	0	\$34,400 Completed	0	0	0	0	<b>\$34,400</b>



**Cable Project 7**

**Palo Prado Subdivision –**

**Underground Cable Replacements – 13,500 total feet**

This project is west of the Tubac village, in the Palo Prado subdivision. This project is planned to annually to replace 20% ( $13,500/5 =$ ) or 2,700 feet of underground cable, of the planned total project of 13,500 feet, during each year between 1999 and 2003 based on the funding profile. UNSE Response Exhibit 2 reported \$54,120 was expended to complete a \$531,200 project that installed no cable in 1999 that used ( $54,120/531,200 =$ ) 10.2% of the planned budget. If \$54,120 was expended in 1999, equating to 1,375 cable-feet (at \$39.35/foot), thus in 1999, only ( $1375/2700 =$ ) 50.9% of the first of five years work could have been accomplished. Thus, 12,125 feet of cable remain to be replaced for this project. **The data from UNSE are erroneous, thus approximately 12,125 cable-feet (budget at \$477,800) remains to completed.**

Number of cable- feet documented to be replaced = 13,500 feet  
Actual cable-feet documented as being replaced = 0 feet  
Percent of cable-feet in project replaced =  $0/13,500 =$  0.0%  
Number of cable-feet not documented as replaced =  $13,500 - 1,375 =$  12,125 feet remain  
Cost per cable-foot to be replaced =  $\$531,200/13,500 =$  \$39.35 per cable-foot  
Cost to complete Project =  $\$531,200 - 54,120 =$  \$477,800

**DATA REPORTED by CITIZENS for Cable Project 7**

Total Number of Cable-Feet for Project	Cable-Feet to be replaced in 1999	Actual Cable-Feet replaced to date (1999)	Project 7 Budget					Budget for Project
			1999	2000	2001	2002	2003	
13,500	2,706	0	\$106,240	\$106,240	\$106,240	\$106,240	\$106,240	\$531,200

**DATA REPORTED in UNSE Response for Cable Project 7**

Actual cable-feet Replaced in area	Total cable-feet to be replaced	Total cable-feet remaining	Project 7 Expenditures					Total Estimated Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	13,500	12,125	\$54,120 Completed	0	0	0	0	\$54,120

**Cable Project 8**

**Empty Saddles Subdivision –**

**Underground Cable Replacements – 8,180 total feet**

This project is west of the Tubac village, in the Palo Prado subdivision. This project is planned to annually to replace 20% ( $8,180/5 =$ ) or 1,636 feet of underground cable, of the planned total project of 8,180 feet, during each year between 1999 and 2003 based on the funding profile. **The UNSE Response Exhibit 2 data are erroneous. NO underground cable replacement work has been done in this subdivision (I live there) and replacing over 1.5 miles of underground cable in a 22 lot subdivision of about 110 acres would be noted by all residents.**

Number of cable- feet documented to be replaced =	8,180 feet
<u>Actual cable-feet documented as being replaced =</u>	8,180 feet
Percent of cable-feet in project replaced = $0/8,180 =$	0.0%
Number of cable-feet not documented as replaced = $8,180 - 0 =$	8,180 feet remain
Cost per cable-foot to be replaced = $\$327,200/8,180 =$	\$40 per cable-foot
Cost to complete Project = $8,180 * 40 =$	\$327,200

**DATA REPORTED by CITIZENS for Cable Project 8**

Total Number of Cable-Feet for Project	Cable-Feet to be replaced in 1999	Actual Cable-Feet replaced to date (1999)	Project 8 Budget					Budget for Project
			1999	2000	2001	2002	2003	
8,180	1,636	0	\$65,440	\$65,440	\$65,440	\$65,440	\$65,440	\$327,200

**DATA REPORTED in UNSE Response for Cable Project 8**

Actual cable-feet Replaced in area	Total cable-feet to be replaced	Total cable-feet remaining	Project 8 Expenditures					Total Estimated Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	8,180	8,180	\$65,440 Completed	0	0	0	0	\$65,440

**Cable Project 9**

**Mt Hopkins – Underground Cable Replacements – 52,800 total feet**

This project extends from the Amado substation (Kantor) to the Smithsonian Institute-Harvard observatory on the top of Mount Hopkins. This is a significant issue, as stated by the utility company in the Plan of Action”

“A significant portion of the cable replacements involves the underground feed to the top of Mount Hopkins. This cable was installed by a contractor in the 1970’s, and was also direct buried. This cable has numerous faults. When a fault occurs, locating the faulted portion requires an entire crew. It should be noted that because this part of the county is so far from the rest of the service territory, if there is an outage that requires a crew from Nogales, it takes a minimum of an hour for them to get there.”<sup>91</sup>

This project is planned to replace 21,3% (457,000/2147,000 \* 52,800 =) or 11,238 feet of underground cable in 1999, and 10,388 feet per year of the planned total project of 52,800 feet, during each year between 1999 and 2003 based on the funding profile.

<b>Number of cable- feet documented to be replaced =</b>	<b>52,800 feet</b>
<b><u>Actual cable-feet documented as being replaced =</u></b>	<b>0 feet</b>
<b>Percent of cable-feet in project replaced = 14,157/52,800 =</b>	<b>0.0%</b>
<b>Number of cable-feet not documented as replaced = 52,800 – 0 =</b>	<b>52,800 feet remain</b>
<b>Cost per cable-foot to be replaced = \$2,147,000/52,800 =</b>	<b>\$40.67 per cable-foot</b>
<b>Cost to complete Project = 52,800 * 40,67 =</b>	<b>\$2,147,000</b>

**DATA REPORTED by CITIZENS for Cable Project 9**

Total Number of Cable-Feet for Project	Cable-Feet to be replaced in 1999	Actual Cable-Feet replaced to date (1999)	Project 9 Budget					Budget for Project
			1999	2000	2001	2002	2003	
52,800	11,435	0	\$457,400	\$422,400	\$422,400	\$422,400	\$422,400	\$2,147,000

**DATA REPORTED in UNSE Response for Cable Project 9**

Actual cable-feet Replaced in area	Total cable-feet to be replaced	Total cable-feet remaining	Project 9 Expenditures					Total Estimated Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	52,800	52,800	\$327,560	\$2,300	0	0	Completed	\$329,860 <sup>92</sup>

<sup>91</sup> Late-Filed Exhibits, Exhibit M-E, page 3 of 4.

<sup>92</sup> UNSE Response Exhibit 2 shows \$457,400 as “Estimated Cost” and “UNS Electric completed this project” in 2003 and an entry of \$2,300 expenditures for 2000.

**Cable Project 10**

**Meadow Hills Subdivision –**

**Underground Cable Replacements – 15,840 total feet**

This project is subdivision in the northern part of the City of Nogales, and is planned to annually to replace 20% ( $15,840/5 =$ ) or 3,168 feet of underground cable, of the planned total project of 15,840 feet, during each year between 1999 and 2003 based on the funding profile.

Number of cable- feet documented to be replaced = 15,840 feet  
Actual cable-feet documented as being replaced = 0 feet  
Percent of cable-feet in project replaced =  $0/15,840 =$  0.0%  
Number of cable-feet not documented as replaced =  $15,840 - 0 =$  15,840 feet remain  
Cost per cable-foot to be replaced =  $\$633,600/15,840 =$  \$40 per cable-foot  
Cost to complete Project =  $15,840 * 40 =$  \$633,600

**DATA REPORTED by CITIZENS for Cable Project 10**

Total Number of Cable-Feet for Project	Cable-Feet to be replaced in 1999	Actual Cable-Feet replaced to date (1999)	Project 10 Budget					Budget for Project
			1999	2000	2001	2002	2003	
28,160	3,168	0	\$126,720	\$126,720	\$126,720	\$126,720	\$126,720	\$633,600

**DATA REPORTED in UNSE Response for Cable Project 10**

Actual cable-feet Replaced in area	Total cable-feet to be replaced	Total cable-feet remaining	Project 10 Expenditures					Total Estimated Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	28,160	28,160	\$327,560 Completed	0	0	0	0	\$633,600

**Cable Project 11**

**Canyon Del Oro/Vista Del Cielo area =**

**Underground Cable Replacements = 4,500 total feet**

This project is along Canyon Del Oro Lane and Drive, and Camino Vista Del Cielo in northern eastern suburbs the City of Nogales, and is planned to annually to replace 20% ( $4,500/5 =$ ) or 900 feet of underground cable, of the planned total project of 4,500 feet, during each year between 1999 and 2003 based on the funding profile.

**Number of cable- feet documented to be replaced = 4,500 feet**

**Actual cable-feet documented as being replaced = 1,840 feet**

**Percent of cable-feet in project replaced =  $1,840/4,500 =$  40.9%**

**Number of cable-feet not documented as replaced =  $4,500 - 1,840 =$  2,880 feet remain**

**Cost per cable-foot to be replaced =  $\$180,000/4,500 =$  \$40 per cable-foot**

**Cost to complete Project =  $2,880 * 40 =$  \$115, 200**

**DATA REPORTED by CITIZENS for Cable Project 11**

Total Number of Cable-Feet for Project	Cable-Feet to be replaced in 1999	Actual Cable-Feet replaced to date (1999)	Project 11 Budget					Budget for Project
			1999	2000	2001	2002	2003	
4,500	900	1,840	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$180,000

**DATA REPORTED in UNSE Response for Cable Project 11**

Actual cable-feet Replaced in area	Total cable-feet to be replaced	Total cable-feet remaining	Project 11 Expenditures					Total Estimated Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	4,500	2,880	\$36,00 Completed	0	0	0	0	\$36,000

**Cable Project 12**

**Rio Rico Resort – Underground Cable Replacements – 1,828 total feet**

The Rio Rico Resort is in Rio Rico, a suburban community, north of the City of Nogales, and is the largest hotel/convention center complex in the County. This project is planned to annually to replace 20% (1,828/5 =) or 5,632 feet of underground cable, of the planned total project of 1,828 feet, during each year between 1999 and 2003 based on the funding profile.

Number of cable- feet documented to be replaced = 1,828 feet  
Actual cable-feet documented as being replaced = 1,828 feet  
Percent of cable-feet in project replaced =  $0/1,828 =$  0.0%  
Number of cable-feet not documented as replaced =  $1,828 * 0 =$  1,828 feet remain  
Cost per cable-foot to be replaced =  $\$73,130/1,828 =$  \$40.00 per cable-foot  
Cost to complete Project =  $1,828 * 40 =$  \$73,130

**DATA REPORTED by CITIZENS for Cable Project 12**

Total Number of Cable-Feet for Project	Cable-Feet to be replaced in 1999	Actual Cable-Feet replaced to date (1999)	Project 12 Budget					Budget for Project
			1999	2000	2001	2002	2003	
1,828	366	0	\$14,624	\$14,624	\$14,624	\$14,624	\$14,624	\$73,130

**DATA REPORTED in UNSE Response for Cable Project 12**

Actual cable-feet Replaced in area	Total cable-feet to be replaced	Total cable-feet remaining	Project 12 Expenditures					Total Estimated Expended on Project
			1999	2000	2001	2002	2003	
Not reported by UNSE	1,828	1,828	\$14,624 Completed	0	0	0	0	\$14,624

Exhibit M-H

Quotes from the Magruder Testimony in the Reliability Case<sup>93</sup>

1. From Appendix C, Electric Reliability Data for Santa Cruz Service Area, 1994-2004", page 109.

Quote:

**C.1 Total Numbers of Interruptions/Outages per Year.**

Table C-1 shows the number of interruptions for each year. They are in two groups, outages that occurred during major storms and all other outages. The total for each year and by outage type is provided. This data was faithfully compiled from these reports, using the "year to date" totals found in the December report. There were a total of 4,362 interruptions in this 10-year period or an average of 436.2 per year.

It should be noted that "supplier" means an outage prior to reaching the Nogales Tap in Tucson, due to either a generation outage or to an outage involving the Western Area Power Administration (WAPA) transmission system. Due to the four supplier outages between 1994 and 1998, Citizens installed a switch at the Nogales Tap that automatically will use power from a second source. Due to this ability to have redundant sources, there have been no supplier outages since that time.

**Table C-1 Number of Interruptions this year.**

Year	Major Storms			All Other Outages				Total
	Supplier	Transmission	Dist	Supplier	Trans	Dist	Sched	
1994	0	0	197	1	0	209	0	407
1995	0	0	125	0	0	282	0	407
1996	1	0	142	0	1	188	0	332
1997	0	0	311	0	0	212	0	523
1998	0	1	308	2	1	272	0	584
1999	0	3	247	0	0	211	2	463
2000	0	6	277	0	0	126	9	418
2001	0	5	198	0	0	196	6	405
2002	0	0	112	0	0	191	6	309
2003	0	3	300	0	0	193	18	514
2004	0	0	NA	0	0	NA	NA	NA
Totals	1	18	2217	3	2	2080	41	4362

End Quote

<sup>93</sup> Re-opened ACC Docket No. E-01032A-99-0401 and ACC Order No. 62011, Magruder Testimony, of 8 July 2005. The footnotes are the same as in the reference; however, they are renumbered sequentially herein.

2. From Appendix C, Electric Reliability Data for Santa Cruz Service Area, 1994-2004", Appendix E<sup>194</sup>.

Quote:

**E.3.2 Other Planned Improvements NOT Dependent On The Second Transmission Line.**

- a. Replacing poles. A plan is presented to replace 3,060 poles which "have reached the end of their life cycle"<sup>95</sup> during 1999 costing \$4,320,000, in 2000 for \$4,285,000 for \$1,190,000, in 2001, 2002, and 2003. There are 20 different pole replacement projects listed. A "progress to date" shows that 634 poles had been replaced for the estimated 616 as of this report. Table E.3.2-1 below shows the plan for replacing these above ground poles.<sup>96</sup>

**Table E.3.2-1 Above Ground Replacement Pole Plan.** It should be noted that the 1999 estimates and "to date" actual installations do not meet the planned number of replacements.

ID	Pole Replacement Project	Total No of Poles	1999 Est. No.	Poles to date	1999 Plan (\$)	2000 (\$)	2001 (\$)	2002 (\$)	2003 (\$)
1	Nogales West area	75	75	26	300,000	0	0	0	0
2	Nogales West north area	75	15	28	90,000	30,000	30,000	30,000	30,000
3	Reconductor Mariposa Industrial Park	75	1	1	90,000	75,000	0	0	0
4	Downtown Southeast	300	60	74	360,000	120,000	120,000	120,000	120,000
5	Downtown Northwest	300	60	115	360,000	120,000	120,000	120,000	120,000
6	Downtown Southwest	500	100	91	474,000	200,000	200,000	200,000	200,000
7	Downtown Northeast	300	60	20	360,000	120,000	120,000	120,000	120,000
8	Beatus Estates	150	0	0	180,000	60,000	60,000	60,000	60,000
9	Valle Verde	150	30	106	180,000	60,000	60,000	60,000	60,000
10	Chula Vista	50	2	0	60,000	20,000	20,000	20,000	20,000
11	Activate Circuit 6242	100	0	0	180,000	60,000	60,000	60,000	60,000
12	Circuit 6241	50	10	0	60,000	20,000	20,000	20,000	20,000
13	Meadow Hills North	75	15	0	90,000	30,000	30,000	30,000	30,000
14	Meadow Hills South	75	15	0	90,000	30,000	30,000	30,000	30,000
15	Transmission Line	20	2	0	320,000	0	0	0	0
16	Highway 82	250	60	148	275,000	120,000	120,000	120,000	120,000
17	Old Tucson Road	10	10	9	25,000	0	0	0	0
18	Rio Rico Highway Crossing	0	0	0	126,000	0	0	0	0
19	Rio Rico Industrial Park	25	1	16	100,000	0	0	0	0
20	Flux Canyon area	500	100	0	600,000	200,000	200,000	200,000	200,000
Totals		3,080	616	634	\$4,320,000	\$1,265,000	\$1,190,000	\$1,190,000	\$1,190,000

- b. Replacing underground cable. A plan is presented to replace 159,388 total feet of underground cable during 1999 costing \$1,310,104, in 2000, 2001, 2002 and 2003 for \$1,275,104, in 2001, 2002, and 2003. There are 12 different underground cable replacement projects listed with replacements required in Rio Rico and Tubac having the highest priority. A

<sup>94</sup> Appendix E, Reliability Agreement Agreed to by Citizens in 1999 and Subsequent Compliance, Section E.3, Citizens "Supplement to Santa Cruz Electric Division Transmission Alternative and Plan of Action, paragraph E.3.2, Other Planned Improvements NOT Dependent on the Second Transmission Line, pages 135 to 137. Footnotes from this Testimony have been changed to be in sequence with the filing in the present case. When a document title has been abbreviated, its full title is used.

<sup>95</sup> *Ibid.* PDF page 52.

<sup>96</sup> In Supplemental POA, PDF pages 26, 41, 43, 45, and 52. [it is noted that these pages are unnumbered.]



"progress to date" shows that 25,741 actual feet of cable had been replaced for the 32,753 feet estimated as of this report. Table E.3.2-2 below shows the plan for replacing these above underground cables that Citizens indicated were low reliability due to directly buried cable and for replacing old cable with high failure rates.<sup>97</sup> It should be noted that many of the cable replacements in the progress to date column were significantly over-ran the estimated number of feet versus actual number of feet.

**Table E.3.2-2 Below Ground Replacement Cable Plan.** *It should be noted that the 1999 estimates and "to date" actual installations do not meet the planned number of replacements.*

ID	Underground Cable Replacement Project	Total Feet	1999 Est. Ft.	Ft. to date	1999 Plan (\$)	2000 (\$)	2001 (\$)	2002 (\$)	2003 (\$)
1	Mariposa Manor	7,677	1,535	0	61,416	61,416	61,416	61,416	61,416
2	Monte Carlo	12,040	2,408	2,454	96,320	96,320	96,320	96,320	96,320
3	Rio Rico Urban 3	28,160	5,632	14,157	225,280	225,280	225,280	225,280	225,280
4	Preston Trailer Park	3,633	727	0	29,064	29,064	29,064	29,064	20,064
5	Tubac Country Club	6,900	1,380	0	55,200	55,200	55,200	55,200	55,200
6	Tubac Valley County Club	4,300	860	7,290	34,400	34,400	34,400	34,400	34,400
7	Palo Parado	15,530	2,706	0	108,240	108,240	108,240	108,240	108,240
8	Empty Saddle Estates	8,180	1,636	0	65,440	65,440	65,440	65,440	65,440
9	Mt. Hopkins	52,800	11,435	0	457,000	422,400	422,400	422,400	422,400
10	Meadow Hills	15,840	3,168	0	126,720	126,720	126,720	126,720	126,720
11	Canyon Del Oro/Vista Del Cielo	4,500	900	1,840	36,000	36,000	36,000	36,000	36,000
12	Rio Rico Resort	1,828	366	0	14,624	14,624	14,624	14,624	14,624
Totals		161,388	32,753	25,741	\$1,310,104	\$1,275,104	\$1,275,104	\$1,275,104	\$1,275,104

End Quote

<sup>97</sup> *Ibid*, PDF pages 26, 42, 43, 45, 52 and 53.